THE X

Historical Society

INDUSTRIALIST

Vol. 32

No. 1

ISSUED WEEKLY BY

Kansas State Agricultural College Manhattan



PUBLISHED BY
PRINTING DEPARTMENT
J. D. RICKMAN, Supt.

Entered at post-office, Manhattan, Kan., as second-class matter. Act of July 16, 1894.

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THE INDUSTRIALIST.

VOL. 32.

MANHATTAN, KAN., SEPT. 25, 1905.

No. 1

English in the Public Schools.

MY attention has been frequently and forcibly called of late to the deplorable fact that the boys and girls sent out from some of our public schools are too often unable to speak and write correct English. I will put the statement more positively and affirm that many of these boys and girls speak and write the most atrocious English. It would almost seem that when two forms of expression are presented to the mind of the pupil—one correct and the other incorrect—he maintains a peculiar and perverse genius for choosing the incorrect.

The curriculum of the Agricultural College is so arranged that pupils from the eighth grade of the district school may enter our Preparatory Department, while those that have completed the course in the high schools are admitted to the College classes. Presumably those that come to the College are the brightest and most promising pupils of the schools whence they come. Yet it sometimes seems the exception for one of these boys or girls to speak or write English that would not be discreditable to a bright boy eight years old. It is not uncommon for a student to be uncertain whether a word is a noun or a verb; while in speech he will often divorce his verbs from his nouns in spite of all the laws of language that declare these parts of speech to be "one flesh" and forbid any man to put them asunder. For instance, a large percentage would see no fault in the expression, "When one goes to college they ought to do their best." A large proportion indulge freely in unrelated participles, while misplaced phrases and clauses seem to be the special delight of the average callow youth. One of them, in giving an account of a church dedication, wrote: "The church building was in every way very attractive. The Rev. Mr. Jones, a former pastor, preached the dedication sermon. It was forty feet wide and eighty feet long, heated with hot air and lighted by gas." It was probably a brother of the same literary genius that advertised: "For sale, a piano by a gentleman about to leave the city with beautifully carved legs and inlaid top." Another

gave to his county newspaper the touching announcement that "Henry Jones died yesterday eating breakfast seventy years of age." When I read that statement I felt that Mr. Jones was to be congratulated for choosing that particular occasion for escaping from the woes of life. For my part I don't see how he could well have done otherwise.

Another particular at which young people are often at fault is found in their spelling. I have known of some students who could find more different ways of spelling certain words wrong than there are letters in the words themselves. It would seem as if, in the matter of spelling, these students act on the principle that of two evils they choose both. They are not even consistent in their blunders. For illustration, a student had occasion, not long ago, to use the word "machine" four times in an examination, and he showed great ingenuity in finding four different ways of spelling the word wrong. He wrote "mechine," "machiene," "mashine," and "masheen," and this in spite of the fact that the word was correctly spelled in the question that he was struggling to answer. Another student wrote an excuse for absence in this way: "Dere proffesor, I had a cold yesterday and did not wish to go out in such bad wether." When I read that it seemed to me the worst spell of weather I had known in a long time.

Recently I tried an experiment, the results of which were suggestive if not encouraging. I asked each member of two classes, numbering fifty-two students each, to bring in two words in common use. One hundred words were included in each list. Not a word was unusual or difficult. Not a word should have caused the slightest hesitation on the part of any graduate of a grammar school. I pronounced the words in each list to the class from which the words came. What was the result? Not a single student spelled every word correctly. One missed only one word, more than half missed between twenty and thirty words, about ten per cent missed fifty or more, and two missed over sixty words. The record was about the same in both classes. After such experiences, is it any wonder that teachers of English become bald and gray?

Not long ago I had occasion to step into a certain office. A rosy-cheeked young woman, a graduate of the high school, and at the time a member of a College class, was present. I asked her if Mr. — was in the office. With a smile upon her ruby lips and with dimples waltzing over her cheeks, she sweetly replied: "I don't think he's in yit. I haint saw him this morning." Her answer surprised me and set my teeth on edge like a drink of vin-

egar out of a molasses barrel. Another young woman, a graduate of a city high school, said in my hearing: "I haint got nothin' to wear or I would have went."

Now, these are not exaggerated or rare instances. They are but fair illustrations of the English that may be heard from the lips or read in the compositions of a very large proportion of the boys and girls that complete the course in the public schools. These boys and girls are living examples of the fact that bad spelling, bad grammar, incorrect pronunciation and inability to speak or write a correct sentence are prevalent faults.

Now, what are the causes of this condition of affairs? Shall we say that the schools are wholly at fault? I do not believe it. Were it not for the schools the situation would be many times worse. The causes are manifold. I will name here but one or two, and these, possibly, not the chief sources of the evil.

In the first place there is a prevalent notion that English is not "practical;" that it does not greatly help to solve the bread-and-butter problem. Now, we are, some think, somewhat too much given to the material side of life. We exaggerate, possibly, the importance of the dollar, forgetting that its only real value is to be measured by its power to do good in the world and to get good out of the world. The tendency is to become sordid. We speak of success, and if you ask boys and girls what success is they will almost invariably give an answer which shows that their idea of success is based on the ability to gain money. They imagine that the knowledge of English will not be of much assistance in getting on in life, so they slight English. They are mistaken in this conclusion, as I shall presently show, but the fact remains.

Another reason for the prevalent neglect of this subject is found in the notion that the pupils know English already. As a matter of fact, the hardest task set for teachers of this subject is to break pupils of wrong habits of speech acquired before school days begin.

Now the question arises, why not be satisfied with present conditions? Why give more attention to English?

I will attempt to state only two or three reasons for devoting increased energy to this subject.

(1) In the first place I appeal for more English, because of the practical value of the study. The American people are constantly clamoring for the "practical" in education. Very well! Let us meet them on their own ground. What is of more practical value than the ability to use our great language with effectiveness? This speech is of daily use. It is the one channel through which, most

of all, men reveal themselves. It is the one outlet through which a man's knowledge and all his thoughts find expression. A famous old book says: "Ye shall know them by their fruits." With almost equal truthfulness it might be said, "Ye shall know them by their speech." No matter how learned one may be in other things, no matter how wise his thoughts, unless he can give effective expression to his knowledge, unless he can give correct and forcible utterance to his thoughts, by so much will the value of his special training be limited and the power of his opinions to move mankind be restricted. Other things being equal, the man who speaks and writes good English will make for himself a place in the world and will be a leader among men. For illustration, suppose two young men, equally well-trained in some specialty, both of good character, each enthusiastic and competent; suppose each of these young men to write a letter of application for a position, that needs such special knowledge as both of them possess. One applicant expresses himself in correct, clear, straight-forward, forcible English; the other misspells an occasional word, writes an ungrammatical sentence or two, and misplaces some of his capital letters. Which of these two young men will be most likely to obtain the place? So I argue for more English in our public schools because of its practical value.

(2) In the second place, I urge more attention to this study because of its broadening and uplifting effect upon the mind. Our literature brings the mind into relationship with the greatest souls that ever breathed the mortal air. He that knows this literature touches life on many sides and sees the world and human society from many points of view. English is a specialty that is not narrowing in its effects.

This thought raises the question of the meaning of education. What, after all, is its real purpose? Why do we send our boys and girls to school? Why do we buy books, build schoolhouses, and provide teachers? Why does the state establish and support, or why do individuals organize and endow colleges and universities by the hundred and fill them with learned professors? Is it for the mere purpose of preparing some men and some women to earn a living? If that is all, the wisdom and justice of the undertaking may well be questioned. There is no doubt that, because of his training, an educated man should get on in the world better than would be otherwise possible; but that is not the prime purpose of education. Our educational system exists not for individuals, but for the state, for society, for civilization. Not so much to prepare young men and young women to earn a living as to prepare them

for living, do the American people expend millions every year for the support of our educational institutions; to make life worth living and to make men and women worthy of life. Our public schools should not be thought of as designed solely to make farmers or teachers or mechanics of men. Of course these schools do—the Agricultural College, for example, does—make better farmers of men, but if that is all it does the Agricultural College fails in an important part of its mission. Its highest function is not so much to make better farmers of men as to make better men of farmers; to give the men and women of the coming generations a better command of all their powers, so that they may get more out of life and contribute more to life. Many, too, have a wrong conception of the real meaning of education. A student not long ago said to me: "I left the farm and came to college in order to get an education, so that I might earn a living without having to work so hard." Noble ambition! I said to him: "My dear young friend, there is one thing that you would better learn at once that is, that unless you work harder here than you ever worked before, you might as well go back to the farm now and save time; and then, if you manage to stay through the course, and afterward do not do twice as much work in the world as you have ever done before, you will be unworthy of the institution that graduated vou."

Thus an education is not to be conceived as designed to relieve one from work; rather should it be thought of as imparting to its possessor the power to do more work and to make his work count for more than would otherwise be possible. The world expects more and has a right to expect more of the man who has an education than it would expect had he not enjoyed such advantages.

And nothing prepares a man to contribute to life his best powers more than a broad knowledge of our splendid language and literature. He who knows our literature and can speak and write our noble language effectively touches life on many sides. He is saved from narrowness and smallness of vision. He is not a point, or even a line. He is a sphere. He is tangent to all human interests and has a sympathetic charity for all human character.

(3) In the third place, I would advocate more English in our public schools, because familiarity with our great writers and a genuine love for and appreciation of that which is best in literature will furnish him who is thus provided with an unfailing source of happiness.

The burdens of life will come all too soon. Dark days will dawn for every human soul. There will be sad hours, when the heart

is cast down and existence seems hardly worth the while. At such times, outside the consolations of religion, I know of nothing that can dissipate the clouds as quickly as a good book. At such a time of depression open your Shakespere and forget your present misery by spending an hour in the imaginary world of his creation. Follow Nick Bottom, as great a donkey before his transformation as after, during his strange experiences of "A Midsummer Night's Dream," courted by the fairy queen and uncertain whether he would enjoy most her caresses, a peck of dry peas, or a "bottle of hay;" follow Nick Bottom through the mazes of that enchanted forest, and before you are half done with him your clouds will be dispelled, and only the sky, not yourself, will be blue.

Or, in your hours of leisure, on winter evenings, take down your copy of Thackeray, or Burns, of Walter Pater, or Browning, or John Fiske, and drawing your chair before the fire enrich your soul with the genial or wise or noble and uplifting thoughts of these demigods among men, and thus polish your weapons and nerve your arm and quicken your courage for the further battles of life.

When a teacher arouses in any pupil a genuine love for literature he has done far more for that pupil's future than if he were to make him heir to a fortune.

Because, therefore, of its practical value; because of its broadening and uplifting effect upon the mind, and because it is a perennial source of happiness, I appeal for more study of the English language and literature in the public schools.

SUGGESTIONS.

In regard to methods, let me make some brief suggestions. For one thing, I would train the children thoroughly in the elements of grammar, especially in the analysis of passages in actual literature. Thus pupils learn that the laws of grammar are not arbitrary, but have an actual application in literature and are drawn from literature.

Again, train them in reading. Have them read the best literature aloud. And when I say read, I do not mean mumble. Teach them to speak distinctly, to articulate sharply, to pronounce correctly. It is more than this. To read is to interpret. It is not simply to say the words—it is to bring out the thought, the sentiment, the spirit of the passage—to make the characters and scenes living and real. Thus we train the thought, feeling and imagination of the pupils and awaken them to a new intellectual life.

For instance, suppose a class is studying "The Merchant of Venice." Let the pupils become so familiar with the language

and so imbued with the spirit of the play that the characters shall be real; then have them read, say, that passage in the third act in which Shylock reveals himself. Or have them read the famous trial scene in which Portia enters in the guise of the wise, young judge, the loveliest girl I ever met—in books. As she pronounces her judgment, hear Shylock, broken in his tenderest part, cry out, "Shall I not have barely my principal?" And so lead the pupils to study character and to look for motive in the lives of men as revealed in literature.

I would cultivate, also, the imagination by leading pupils to see the pictures painted in the masterpieces of our great writers. Have them read such productions as Tennyson's "Sir Galahad," and see the vision he portrays when he sings:

''Sometimes on lonely mountain meres
I find a magic bark;
I leap on board; no helmsman steers;
I float till all is dark.
A gentle sound, an awful light!
Three angels bear the Holy Grail,
With folded feet in stoles of white,
On sleeping wings they sail.
Ah, blessed vision! blood of God!
My spirit beats her mortal bars,
As down dark tides the glory slides,
And star-like mingles with the stars.''

Or help them to realize the feeling, the unutterable pathos in those words of Burns:

"Ye banks and braes o' bonny Doon,

How can ye bloom sae fresh and fair?

How can ye chant, ye little birds,

And I sae weary, fu' o' care?"

Another suggestion that I would make is, that pupils constantly write in connection with their reading. For example, if they are reading "Julius Cæsar," have them write a paragraph descriptive of Antony and Cassius; have them reproduce in prose the speech of Antony or give an account of the portents that preceded Cæsar's assassination. Have them find and express all they can in justification of Shylock's course, or give a description of one of the casket scenes in the "Merchant of Venice," or write what they regard as the important lesson of the play; or reproduce separately its four stories; or have them write the "Vision of Sir Launfal" in prose; or state the great lesson of "The Ancient Mariner" and point out specifically those stanzas of the poem in which the lesson is revealed.

Thus an indefinite number of topics can be drawn from each production read. These papers need be only a paragraph in length, but they should come every day or two. They should be carefully criticised, and so far as possible the pupils themselves should be trained to do the criticising. Make sure that the spelling, punctuation, capital letters and grammar are all that they should be. Then aim to develop a spirit of emulation so that the writers shall seek to be interesting. By such constant practice in composition in connection with their reading the students will be taught to think as they read and to express their thoughts with accuracy and excellence.

Upon the teachers of to-day rests in large measure the responsibility for the training, the broadness of mind, the culture of the men and women of to-morrow. In order to fulfill this responsibility, whatever else we teachers must neglect, we may not neglect this all-important, this extremely difficult study.

CLARK M. BRINK.

The Agricultural College at the State Fair at Topeka.

THE Agricultural College had a number of well-prepared exhibits at the State Fair at Topeka two weeks ago and deserves credit for its energetic efforts at advertising the resources of the State.

The Horticultural Department exhibited fifty varieties of grapes and forty of apples, twenty of potatoes, eight of sweet potatoes, twelve of onions, and a dozen each of pumpkin and squashes, with salsify, beets, carrots, peppers, eggplant and parsnips galore. This exhibit was not entered for competition as the authorities of the fair notified the department that it would not be allowed to enter for prizes for fear that others would not exhibit if this be allowed. The College usually carries off most of the prizes.

The Agricultural Department of the College had a crop exhibit, showing samples of corn and grain, with yields and weights per bushel of each. An educational display of corn breeding was shown as to types to be selected and those to be rejected. A lecture and demonstration on grain judging was given at a certain hour each day.

The Animal Husbandry Department showed in open competition two animals. One, the Shorthorn bull, Ravenswood Admiration 186157, sired by the great show bull, Lavender Viscount, has never taken lower than second prize as a calf at such shows as Des Moines and Kansas City. He is a 4-year-old, weighing over 2300 pounds. The other is a Shorthorn heifer, bred here, and

sired by Ravenswood Admiration 186157, out of dam Young Mary, bred by T. K. Tomson & Son. The Department placed some of its other blooded stock on exhibition, among them two polled Durham and three Ayrshire cattle.

The Dairy and Animal Industry Department had an exhibit showing the composition of eggs from its poultry yards. It showed cows of the leading breeds. The milk of all cows on exhibition was tested and premiums awarded for butter fat. The College made official tests of cows whose owners wished them tested for advanced register.

A butter-making contest was held between students and a cash prize of \$10 awarded the maker of the best butter, \$5 in cash to the second best. A four by five feet model of the College Dairy building in butter was exhibited in a glass case.

The exhibit that drew the most attention was undoubtedly the working dairy in Machinery Hall. It occupied the whole center part of the building, some sixty by twenty feet in extent, and consisted of a complete operating creamery, with steam boilers, separators, Pasteurizers, churns, etc. Prof. O. Erf, assisted by several dairy students, formed there the center of a constant throng of farmers and milk men who studied the exhibited methods and the apparatus and asked questions concerning the results. Modern exhibitions are making a specialty of processes rather than products, and the College Dairy Department at work was the most interesting division of this part of the fair.

Notice to Contractors.

Sealed bids for the construction of an addition to the boiler-room at the Kansas State Agricultural College will be received at the office of the undersigned till 2 P. M., September 29, 1905. Plans and specifications for proposed addition are now on file in this office. Bids must be accompanied by certified check for \$150, to be forfeited to the Board of Regents if the successful bidder does not enter into contract and give bond as required by law within five days after notification. The Board reserves the right to reject any or all bids. Mark envelope containing bid, "Addition to boiler room." E. R. NICHOLS, President, Manhattan, Kan.

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Kansas State Agricultural College Manhattan, Kansas,

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Local Notes.

Prof. E. B. McCormick and family had a very fine summer outing on the shores of the northern lakes.

President and Mrs. Nichols will give a reception to the Board and Faculty on September 28 at their residence, East Parkgate.

A fine new grand piano and three upright pianos have been added to the equipment of the Music Department. The gymnasium department also has a new piano.

Assistant Caroline Hopps, of the English Department, spent the greater part of her vacation in the Harvard University summer school, where she took work in English branches.

The Physics and Electrical Engineering Department has lately installed a 60-cell "chloride accumulator" storage battery for electrical engineering work. This will be used for experimental purposes.

Preparations are being made for a poultry show at the K. S. A. C. some time in December. It is expected that the exhibition will be as good, if not better, than the one held in 1902, which was a great success.

The September rains have kept the large College campus in fine shape. The lawns, bushes and trees are as fresh and green as they were in June, and our many visitors pronounce it the most beautiful landscape in Kansas.

Assist. Prof. H. Brown, of the Music Department, tells us that his military band has again been engaged to take part in the Priests of Pallas parade at Kansas City, October 3. Only the best bands of Kansas and Missouri are being engaged for this occasion.

Asst. Prof. A. A. Potter, of the Mechanical Engineering Department, spent a part of his vacation in the smelters of Pueblo and Denver and at the Boulder Chautauqua. The greater part of the summer was given to work in rewiring the shops and darftingrooms of the engineering building, where he did heroic work during the hottest part of the season.

Prof. J. D. Walters, of the Department of Architecture at the Kansas State Agricultural College, Manhattan, returned recently from Lincoln, Neb., where he put up a sculpture butter exhibit, representing a polar bear in an immense cave, for the Beatrice Creamery Company, at the Nebraska State Fair. About 3213 pounds of creamery butter were used.—*Topeka Herald*.

Professors F. S. Schoenleber and C. L. Barnes, of the Department of Veterinary Science, were at their post the whole summer doing State sanitary work and making preparations for the new four-year course in veterinary science, which will begin its work this fall term.

Miss Alberta Wenkheimer, who had come to attend College and had been located and ready for College duties, received a telegram Thursday morning which told of the sudden death of her mother at the home in Belpre, near Hutchinson. Miss Wenkheimer left on the afternoon train.

Rae Nichols, son of Pres. E. R. Nichols, while playing one day last week at the home, corner of Ninth and Leavenworth streets, fell six feet to the ground and his right arm was broken. The brake occurred in the radial bone. Dr. Ross set the broken bone and he is mending like a strong boy.

The College pumping station continues to give Engineer Lund a deal of trouble. The pumping of water and quicksand for a year has caused the ground about the well to settle to such an extent that lately the rear part of the walls of the pump-house caved in and the pump became dislocated so that it could not work.

The Department of Architecture has been strengthened this summer by the addition of a new assistant, M. S. Brandt, lately of Sunshine, Colo. He is a young man twenty-three years old and a graduate from the engineering school of Yale University. He comes to Manhattan highly recommended by his professors, and his employers in Colorado where he worked at mining engineering in a large mine in Boulder county since his graduation. Mr. Brandt will board with H. Ziegler, on Leavenworth street.

Interest in domestic work for the young women of Kansas is growing rapidly. Forty out of a graduating class of forty-one young women were sent out from the Kansas State Agricultural College, at Manhattan, in 1905. This is without doubt the largest class of domestic scientists ever turned out of any educational institution at any one time. A private laboratory, with electrical cooking apparatus, is now being installed for postgraduate students in domestic science.—Kansas Farmer.

The outlook for a good football team at the Agricultural College this fall is very encouraging. Practically all of last year's team will return and will form the nucleus of the squad. The team will be coached by Ahearn, of Amherst, assisted by Melick, of Nebraska. Manager Hamilton has arranged the following schedule: October 7, Friends University, at Manhattan; October 14, Washburn, at Manhattan; October 21, Kansas Wesleyan University, at Salina; October 28, St. Mary's, at Manhattan; November 6, Fairmont, at Manhattan; November 11, open date; November 17, Haskell Indians, at Manhattan; November 25, Kansas University, at Lawrence; November 30, Kansas State Normal, at Manhattan; November 30, second team vs. Kansas State Normal, at Emporia. —Topeka Herald.

Assistant W. Anderson, of the Physics Department, made a vacation trip to Sweden, his native country, this summer, and returns from the land of the setting sun greatly refreshed and invigorated. He reports a prosperous time among his friends and relatives over there, but says that his belief in the sunflower state is stronger than ever.

Married, June 28, at Monroeville, Ohio, Miss Alice Louise Ashton and Oscar Erf. The groom is our professor of animal husbandry. It is a little late to offer congratulations to the happy young pair, but as this is the first news number of the Industrialist published since the event, these well wishes should be placed with the many received earlier in the honeymoon. Mr. and Mrs. Erf have taken rooms at the Huntress residence, on Houston street.

Prof. J. D. Walters spent a part of his vacation at the Colorado Chautauqua, in Boulder, where he delivered a course of twelve lectures on architecture. He was accompanied by Mrs. Walters and their youngest son, Master Elsmer. While there they met many former students of the Agricultural College. Miss Crawford, '02, taught domestic economy at the same chautauqua and the Misses Jeanette and Maud Zimmerman gave instruction in "Nature Study."

One of the most valuable improvements completed during the vacation was made in the College post-office, where the old delivery window was torn out and a delivery room with six hundred lock boxes was built. The box faces are of bronze and are provided with combination locks. The whole arrangement looks neat and post-office like, and will unboubtedly be highly appreciated by the students who formerly often waited in line for weary ten minutes or more to get their mail.

Assistant Ella Weeks, of the Department of Architecture, spent the larger part of her vacation at Knoxville, Tenn., where she took a course in primary branches of drawing at the "Summer School of the South." The school is connected with the State University of Tennessee, but enrolls students from all parts of the country, the enrolment for the past summer reaching two thousand. Miss Weeks returned bright and strong and says that she has been greatly benefited by her work.

No. 43, Vol. 12, of the *Chicago Dental News* publishes a full-page picture of the staff of Dr. James' dental office. The six men shown in the margin of the picture are all handsome specimens of the dental profession, but number seven, the center man—evidently the dean of the faculty—is no other than our professor of music who never studied dentistry, never pulled a tooth, never had a tooth pulled, and who had not been in Chicago for nearly a year. Just how that picture got there Professor Valley cannot explain. He thinks that Dr. James bought the handsomest negative in the photo shop, for a center piece, and that the choice naturally fell on the tall baritone now located near the junction of the Blue and the Kaw. This comes from being a handsome man.

Following the usage of eleven previous years, the College Y. M. C. A. has published for distribution among the students a neat little "Handbook of Useful Information." The booklet is substantially bound in leatherette cover, contains a calendar for 1905-'06, a review of College society history, many points of interest about the College and the city, a Faculty roster, the railroad time-tables, several blank pages for notes and a goodly number of advertisements. The booklet was printed by the College Printing Department and is a model of the typographic art. Get a copy.

At the time of this writing, Saturday morning, the work of assigning students is not nearly completed, though over nine hundred have been definitely given work. A larger number of students than ever before are here from high schools, academies, and other higher institutions where studies similar to those of our first- and second-year courses are given. These candidates want credit for their academic work, and in most cases it takes examinations to determine the degree of proficiency. The senior and junior classes were formed and received their first lectures on Friday and Saturday. From indications of many kinds we predict a very large and highly satisfactory attendance—probably the largest in the history of the College; but it will require another week of organizing before we can give our friends the exact numbers.

Miss Myrtle Mather, a graduate with the class of 1902, was here visiting her mother a few days this week. With the exception of about six weeks Miss Mather has been working in the interest of domestic science since her graduation. She went from here to Bloomington, Ill. For some time she has been lecturing before clubs under the auspices of a lecture bureau, but recently she traveled independently, giving her lectures on domestic science. She has given many lectures before indoor chautauquas and has secured several return dates. This winter Miss Mather will teach the domestic science of cookery at Purdue University, in Indiana, in which institution she created a domestic science department. The success of Miss Mather speaks well for the Domestic Science Department of the Kansas State Agricultural College.—Daily Republic.

Prof. D. H. Otis, formerly of the Kansas State Agricultural College, has just completed a two-years' engagement as manager of the great Deming ranch, Oswego, Kan., and now goes to the University of Wisconsin, at Madison, to take the position of assistant professor of animal nutrition and assistant to the dean of the Agricultural College. In securing the services of Professor Otis, the Wisconsin institution is to be congratulated. He is a persistent worker, a broad-minded student, a careful and virile investigator, a competent instructor, a telling speaker, a strong man. Should Dean Henry—who is recognized as the dean of all the agricultural deans—find it desirable to lean somewhat heavily upon his assistant, he will find him able and willing. Professor Otis carries with him to the North the best wishes of thousands of friends in Kansas.—Kansas Farmer.

Capt. P. M. Shaffer, 25th U. S. Infantry, professor of military science at this College, has issued a pamplet containing "Cadet Regulations for the Government of the Corps of Cadets of the Kansas State Agricultural College." The booklet will be a great help to the members and officers of the cadet corps. The printing and binding of the neat little volume was done in the College printshop.

Prof. J. T. Willard returned last week from his three months' vacation trip to Europe invigorated and ready for another year's work. While abroad he visited a number of agricultural schools and experiment stations, notably the Landwirth schaftliche Hoch schulen, of Berlin, Zurich, and Munich. He also attended the agricultural congress at Liége, Belgium, and studied the beet sugar industry of north Germany. We have asked the professor to write an article on his observations abroad for the INDUSTRIALIST when he has caught up with his work, or to give us a public lecture on the subject as soon as he feels able to do so.

Mr. George Pullen Jackson, Ph. B., the new assistant in German, was born in Monson, Maine, and spent his school years in Birmingham, Ala., where his family had moved in 1890 on account of the ill health of one of the children. He received his higher education in Vanderbilt University and the University of Chicago, attending classes in the later institution for three years. The year of 1896-'97 Mr. Jackson spent in Europe in travel and study, especially in the study of German and music. We may state, by the way, that in addition to his work in language he is an accomplished cornet player. Before coming here he just closed a season's engagement with the famous Chicago Marine Band, carrying this work along while attending the University of Chicago. Mr. Jackson comes to us well recommended; he speaks the German so fluently that Professor Walters took him to be a native of the fatherland on the Rhine.

Kansas is enjoying a year of unconditioned prosperity. It will be a red-letter year equal or surpassing the glorious 1900, 1902 or 1903, when we astonished the whole civilized world with our crops of corn and wheat. Uncle Sam's reports point out that in the fiveyear period ending with the year 1900 the combined value of Kansas corn and wheat exceeded that of the same crops of any other state in the Union. Illinois came next, but fell behind Kansas by a little less than \$19,000,000. The value of the wheat crop of 1903 was nearly eighty million dollars and the value of the corn crop of 1902 nearly a hundred million dollars. In 1899 Kansas beat Missouri at raising corn by forty per cent. In 1899 Kansas raised more wheat by forty per cent than Minnesota. It raised three times as much wheat as California, Texas, or Pennsylvania, and four times as much as Missouri, South Dakota, and Illinois. the past six months it organized 49 new banks and will do better during the present season. Yet, the best crops of all are its boys and girls, its young men and young women. No part of the world can beat Kansas in solid prosperity and genuine gumption.

INDUSTRIALIST

Vol. 32

ISSUED WEEKLY BY

No. 2

Kansas State Agricultural College Manhattan

2

PUBLISHED BY
PRINTING DEPARTMENT
J. D. RICKMAN, Supt.

Entered at post-office, Manhattan, Kan., as second-class matter. Act of July 16, 1894.

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THE INDUSTRIALIST.

VOL. 32.

MANHATTAN, KAN., OCT. 2, 1905.

No. 2

"The Poor Always Ye Have With You."

NE of the most interesting of recent publications of a sociological character is a book entitled "Poverty," by Robert Hun-In the preface he defines the main objects of this work as follows: "To define poverty and to estimate its extent at the present time in the United States; to describe some of its evils. not only among the dependent and vicious classes, which constitute the social wreckage in the abysses of our cities, but also among the unskilled, underpaid, underfed and poorly housed workers; furthermore, to point out certain remedial actions which society may well undertake; and, finally, to show that the evils of poverty are not barren, but procreative, and that the workers in poverty are, in spite of themselves, giving to the world a litter of miserables, whose degeneracy is so stubborn and fixed that reclamation is almost impossible, especially when the only process of reclamation must consist in trying to force the pauper, vagrant, and weakling back into that poverty which is all of the time defeating better and stronger natures than theirs."

He proceeds to treat his subject under six heads. In the first chapter he deals with poverty in general and deplores our ignorance of its extent, and the insufficiency and inaccuracy of data on the subject even as given in the government census reports. The pauper and the vagrant are made subjects for discussion in chapters two and three, respectively. He regards these "as types of those who are beaten and who are sunk into a state of satisfied dependence from which they can only rarely be reclaimed." He directs attention to that larger class from which these dependents are mainly recruited, and who often are confused with the vicious and dependent on the one hand, and on the other with the more highly paid workers. In the chapters on the sick, the child, and the immigrant, he deals with these persons as factors which enter largely into the general problem of poverty and with their part in its perpetuation.

The book does not claim to be a scientific or exhaustive study of

the conditions, causes and problems of poverty. It is simply a narrative of the author's personal experiences and observations as a philanthropic worker among the poor; but he is very successful in showing "the grievous need of certain social measures calculated to prevent ruin and degradation of those working people who are on the verge of poverty." His work undoubtedly will contribute largely to the awakening of public conscience and to the creation of a public sentiment that will not continue to tolerate the existance of certain remediable conditions and abuses which are responsible for much of the poverty of to-day. He clearly distinguishes between poverty and pauperism; and between those who are poor because of certain vicious qualities inherent in themselves and those who are poor because of conditions and environments over which they have no control and for which they cannot reasonably be held responsible.

He criticises severely the popular apathy which permits the continuance and increase of causes and conditions which clearly and inevitably lead to poverty. "Nothing could be more out of reason than our disregard for preventive measures and our apparant willingness to provide almshouses, prisons, asylums, hospitals, homes, etc., for the victims of our neglect."

Mr. Hunter makes the rather startling assertion that there are to-day not less than 10,000,000 persons in the United States who are living in poverty, *i. e.*, whose standard of living is so low that they can not be classed as efficient laborers, and who cease to be self-sustaining upon the instant they, for any cause are unable to work. He considers this a conservative estimate, and proceeds to show by statistics and other indices of poverty that this figure is indeed much below the actual number. The fact that over 2,000,-000 male wage earners in the United States were out of work from four to six months during 1900, and that the number of inmates of almshouses and other public institutions of a charitable nature during that year was in excess of 4,000,000, leads to the conclusion that his estimate can not be far from the correct figures.

Among the causes of poverty which he enumerates and discusses, prominence is given to the following: accidents, disease, centralization of landed wealth, immigration, low wages, uncertainty of employment, and our educational system.

Taking the statistics of life insurance companies and of the National Association of Accident Underwriters, he finds the percentage of fatal accidents to total accidents to vary from 2.1 per cent in factory labor to 40.2 per cent in accidents from boiler explosions. "If we say that twenty-five persons are injured to

every one killed, and consider the population of the United States to be 80,000,000, and the fatal accident rate to be 80 in every 100,000, we have it that 1,664,000 persons are annually killed or more or less seriously injured in the United States." These accidents in nearly every case reduce the injured ones and the families of which they are members to a state of poverty, if not absolute pauperism. The accumulated surplus of the average wage earner, where it exists at all, is soon swept away, and when the injured one happens to be the provider for a dependent family the distress of poverty is soon upon them. Many if not most of these accidents are directly attributable to the negligence of employers to safe-guard labor by such safety appliances as might readily be installed at greater or less expense. The present reluctance of railroad companies to adopt the block system, which would practically insure the safety of trainmen and the traveling public, in the face, too, of the appalling railroad disasters of the past twelve months, is an illustration of corporate greed which permits dividends to outweigh a mere matter of life and limb and the consequent poverty of thousands. The state in this connection comes in for its share of reponsibility. The automatic car-couplers now in general use would not have been substitued for the cheaper, man-killing draw-heads of twenty years ago had not federal and state legislation enforced their adoption. So in many cases legislation can enforce ways and means to reduce to a minimum the loss of life and, what is economically even worse, the loss of labor efficiency through permanent injuries. In this regard we have much to learn from European countries, especially Germany. Here the burden falls with crushing force upon the injured ones and their families, however blameless they may be. In Germany the system of compulsory insurance, which taxes capital for its just share, affords to workmen an economic existence when poverty has resulted from purely social causes.

Another cause of poverty which to some extent is controllable by legislation is disease. Low wages and irregular employment compel many workmen to live in crowded tenements or other unsanitary surroundings, for which they pay relatively a higher rental than the millionaire pays for his summer cottage by the sea. Their food is insufficient both in quantity and quality to meet the demands of hard labor and long hours in poorly lighted and ventilated factories and mines. Disease germs find ready lodgement in their debilitated bodies, and, lacking means to change either their occupations or abodes, they become economically degraded. The descent from such poverty to pauperism, vagrancy and crime is

easy and certain. Alcoholism and tuberculosis are the diseases of poverty. For the former the state, treating it as a crime instead of a disease, provides prisons, punishment, and fines; for the latter it sometimes provides hospitals, more frequently nothing. Tuberculosis, so often the concomitant and always the scourge of poverty, is a preventable disease. The state can do much in the way of sanitary laws, tenement-house regulation and factory inspection to prevent poverty from this cause.

On the ownership of property Mr. Hunter says: "The history of the world has perhaps never shown more abject victims of chance than the modern propertyless workman. A man possessing his own tools or land may always employ himself, and, although it may at times be necessary for him to sell his products for a low price, he need not, except in extraordinary times, become dependent upon others for relief. The tools of the modern workman are the machine; both it and the land are owned by others. He can not work on the land or at the machine except by permission of another. If the owner does not find it possible to employ him, the workman must remain idle. At certain seasons of the year this idleness is compulsory to workmen by the tens of thousands, and at times of business depression by the hundreds of thousands. Without savings adequate to supply his needs, and with his income wholly dependent upon an intermittent demand for his labor, circumstances are apt to arise sooner or later that will force him either to commit crime against property or to depend upon public relief for sustenance. If the state of dependence continues long, habitual pauperism or vagrancy is likely to result. In other words, these outcasts from industry have before them the choice of three evils: starvation, crime, or relief by

In treating of immigration he criticises the artificial stimulus given to it by steamship companies who for selfish reasons promote and encourage the emigration from European countries of large numbers of persons who are by nature, training and financial condition unfitted to take up the strenuous struggle for existence in a strange land and under the most adverse conditions. "Whenever a bill comes up in Congress to restrict immigration, every effort is made by these private interests to prevent its passage." The North German Lloyd Steamship Company a few years ago sent out the following message to its numerous agents throughout the country; "Immigration bill comes up in the House Wednesday. Wire your congressman, our expense, protesting against

charity." Remedial measures in this instance open up so large a field for discussion as to preclude even a brief review of them here.

proposed exclusion and requesting bill be defeated, informing him that vote in favor means defeat next election. (Signed) H. Claussenius & Co."

Railroad companies also exert a powerful influence against any immigrant restrictions; and it is a significant fact that the railroads most active in this matter pay lowest wages to laborers. "This policy pursued for many years in the anthracite mining districts of Pennsylvania caused violent disturbances until the men were organized in labor unions for the purpose of limiting the supply of laborers and of increasing wages." In the further treatment of this subject he discusses the birth-rate of the United States as affected by immigration, and the burden it places upon the state; also the character of immigrants, economic aspects, evils, extent, effect upon labor market, the changing of our national characteristics, and political consequences. The subject is of serious interest not only from the standpoint of poverty but of citizenship and national destiny.

Concerning low wages and the uncertainty of employment the author makes some very suggestive exhibits compiled from census reports and other statistical sources. Thus he shows that from thirty to seventy per cent of the workers in the cotton and woolen mills of the East and South can hope to earn only \$312 a year if they are employed every day in the year. Such a return to labor is not only not a living wage, but is hardly sufficient for mere existence. There can be but one result: the rapid degradation of labor to the point of slavery, unresisting and hopeless. Without espousing any one of the many plans for reform now before the people, and not insensible of the fact that laborers themselves as individuals and in organized groups can accomplish much in their own behalf without the help of the state, he nevertheless leaves the impression that the industrial organizations of present-day society are in urgent need of radical reform along several lines.

In his chapter on The Child, he devotes considerable space to a discussion of our educational system. He declares it has not kept pace with modern progress in other lines. "Parks, playgrounds, baths, recreation centers, athletic fields, gymnasia, social halls, play centers, créches, the social use of schools, and school excursions to the country have developed more slowly than saloons, theatres, public dance halls, rapid transit, etc., because there is no possibility of large profits in developing the former institutions, so necessary especially to the children." He strongly commends industrial education and urges its extention so far as possible to all the divisions of the grammar school. "Are we," he asks, "to have

the school ignore this larger work of education and remain a sort of dispensary of learning—an inflexible missionary of the three R's?" Of teachers as a class he has this to say: "They have not realized that the home is passing away, and that, unless the school takes the child, he is left to the street. They have specialized in philosophy, pedagogy, and psychology. They have isolated themselves from those in poverty . . . from the life of the people, from a vivifying knowledge of the whole child and his environment to such an extent as to prevent a wise adaptation of our educational system to the needs of the child." Continuing the discussion elsewhere, he says: "Nothing less than education is powerful enough to save the child; and to prepare us for complete living is the function of education. The city child needs . . . everything that education has to give, and all things that may wisely be included in that term. To make education synonymous with learning is to rob the child of the sweetest blessings of education. When we come to value education more than we value learning, the school will be the world of the child, whether working, playing, or learning. In the school he will be prepared to enter fitly the world of men." Some of his criticisms are severe and will in turn be severely criticised by many of his readers; but whether one agrees with his conclusions or not, there is that about his discussions and the pictures he presents which claims the attention and stimulates reflection.

The author's concluding words adapt themselves nicely to the conclusion of this review: "To deal with these specific problems of poverty, I have elsewhere mentioned some reforms which seem to me preventive in their nature. They contemplate mainly such legislative action as may enforce upon the entire country certain minimum standards of working and living conditions. would make all tenements and factories sanitary; they would regulate the hours of work, especially for women and children; they would regulate and thoroughly supervise all dangerous trades; they would institute all necessary measures to stamp out unnecessary disease and to prevent unnecessary death; they would prohibit entirely child labor; they would institute all necessary educational and recreational institutions to replace the social and educational losses of the home and the domestic workshop; they would perfect, as far as possible, legislation and institutions to make industry pay the necessary and legitimate cost of producing and maintaining efficient laborers; they would institute on the lines of foreign experience, measures to compensate labor for enforced seasons of idleness, due to sickness, old age, lack of

work, or other causes beyond the control of workmen; they would prevent parasitism on the part of either the consumer or the producer and charge up the full cost of labor in production to the beneficiary instead of compelling the worker at certain times to enforce his demand for maintenance through the tax rate and by becoming a pauper; they would restrict the power of employer and of shipowner to stimulate for purely selfish ends an excessive immigration, and in this way to beat down wages and to increase unemployment."

"Reforms such as these will not destroy incentive, but rather they will increase incentive by more nearly equalizing opportunity. They will make propertied interests less predatory, and sensuality, by contrast with misery, less attractive to the poor."

"Let it be this, rather than a barren relief system, administered by those who must stand by, watching the struggle, lifting no hand to aid the toilers, but ever succoring those who flee and those who are bruised and beaten."

J. E. KAMMEYER.

Notice to Farmers.

The Botanical Department of the Kansas Experiment Station is engaged in an investigation of the adulterations and substitutions practiced in the case of the seed of alfalfa, Bromus inermis, English blue-grass, and other forage plants. It is with respect to the three species above named that extensive adulterations and substitutions seem to have been carried on within the last few years. It is therefore requested that any person having suspected or doubtful seed of the above, send it at once to the address of the Botanical Department, Kansas Experiment Station, together with the date of purchase with the general seedsman, if bought directly, or, if purchased from a local dealer, the name of the latter and the date of his purchase from the wholesale seed house or jobber, with the name of the latter, if obtainable.

It is further requested that all persons contemplating sowing seed of the above-named plants this fall, send samples of the seed purchased, or the purchase of which is under consideration, to this office for examination with respect to purity.

Persons seeing this notice are requested to give it as wide publicity as possible, in order that the Experiment Station may be enabled to assist effectively in detecting cases of attempted adulteration and in the protection of the farmers of the State against imposition in this regard. H. F. ROBERTS,

Botanist, Kansas Experiment Station.

Farmers' Institutes.

A S in former years, the Agricultural College has held a series of farmers' institutes during the summer vacation. Some of these institutes were held in connection with farmers' gatherings of various kinds, such as meetings of stock growers' associations, horticultural societies, old settlers' meetings, and agricultural fairs; others were held as regular sessions of organized institute associations. The attendance at nearly all of these summer institutes was very good and the general interest manifested was very gratifying. Following is a list of the institutes held since July 1, together with the names of the Faculty delegation attending from this College:

Cadmus, July 21, Professor Roberts.

Topeka, Aug. 3, R. E. Eastman.

Lone Elm, Aug. 4, Professors Dickens and Ten Eyck.

Lawrence, Aug. 10, President Nichols and Professor Dickens.

Lyndon, Aug. 15, Professor Erf.

Rush Center, Aug. 16, Professor Kinzer.

Haddam, Aug. 16-17, Professor Walters and Assistant Shoesmith.

Madison, Aug. 17, Mrs. Calvin.

Cimarron, Aug. 18, Professor Kinzer.

Michigan Valley, Aug. 19, Professor Roberts.

Council Grove, Aug. 23, Professor Erf.

Highland, Aug. 24, Professor Dickens.

Randolph, Aug. 24, Professor Walters and Assistant Melick.

Carlton, Aug. 25, Professor Ten Eyck.

Utica, Sept. 1, Professor Ten Eyck.

Garrison, Sept. 2, Professor Erf and Assistant Dean.

Dolespark, Sept. 2, Assistant Melick.

Berryton, Sept. 6, Professor Erf.

Kinsley. Sept. 7, Professor Ten Eyck.

Linn, Sept. 8, Professor Walters.

McPherson, Sept. 14-15, Professor Walters.

Argentine, Sept. 16, Professor Popenoe.

Denison, Sept. 20-21, Professors Ten Eyck and Roberts.

Osawatomie, Sept. 23, Professor Ten Eyck.

A number of institutes have been arranged for the remainder of the present month and for October and November. Parties wishing to secure the co-operation of the College in this work should write at once.

Our short-horn bull, Ravenswood-Admiration No. 168,157, has covered himself with new glory at the fairs at Topeka and Hutchinson this fall. At the former fair he won first in his class and got the senior championship. At the latter place he won first in his class and the championship of all ages.

THE INDUSTRIALIST

Published weekly during the College year by the Printing Department of the

Kansas State Agricultural College Manhattan, Kansas.

PRES. E. R. NICHOLS. Editor-in-Chief PROF. J. D. WALTERS. Local Editor PROF. J. T. WILLARD. Alumni Editor

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Local Notes.

The Botanical Department has added a new stereopticon to its equipment.

Two hundred tons of ensilage were put up this summer for use in the dairy barn.

The old farmhouse north of the feed lots is being treated to a new shingle roof.

The College band will go to Kansas City, October 3, over the Rock Island, to take part in the Priests of Pallas parade.

Mr. J. F. Stodder, of Burden, Kan., a well-known short-horn and Duroc-Jersey breeder, has donated a very fine Duroc-Jersey gelt to the College.

About one hundred fifty girls attended the opening of the new Y. W. C. A. home on September 22. We are glad to note that the association is in a prosperous condition.

Miss Lottie, the eldest daughter of Prof. O. E. Olin, a former K. S. A. C. professor and now of Buchtel College, Akron, Ohio., is teaching in the public schools of Randolph, Riley county.

The Dairy Husbandry Department is building a set of very neat new laboratory tables, with lockers and drawers, in the dairy laboratory. The work is being done by carpenter Nathan Davis.

The Board of Regents were in session at the College this week transacting the usual business of the fall term. All members except Regent Tulloss were present and all seemed to be much pleased with the condition of things at the greatest agricultural school of the country.

The Industrialist, the Jayhawker, and the Herald will all appear in new dress this year. New type to the value of \$800 has been purchased and is now in use. Improvements aggregating \$1000 in cost have been made in the composing-room alone. The printing-office also has a new roller-top desk for Mr. Rickman's use, and the stock-room has been supplied to a value of over \$600.

—Students' Herald.

C. S. Dearborn, assistant in the Department of Mechanical Engineering, has accepted a position as assistant professor of mechanics in the Agricultural and Mechanical College of Montana, at Bozeman, at a greatly increased salary. He left for his new place a week ago. Professor Dearborn is a strong man and a diligent student. It will not be easy to find a successor who will duplicate his work.

On account of a rise of eight per cent in the price of strychnine, it has become necessary to raise the price of the College mixture for poisoning prairie-dogs from \$1.75, the former price charged, to \$2.00. The College is still sending large quantities of the mixture to western counties.

Besides using the milk of the College herd, the College dairy is buying cream of thirty-six farmers and milk of twelve farmers, most of whom live in the vicinity of the institution. Over three hundred pounds of cream and about five hundred pounds of milk are bought of outside parties every other day.

Prof. O. Erf left, on Saturday, for Salt Lake City, where he will judge the dairy cattle at the Utah state fair. From there he will go to Logan, Utah, to judge the dairy products for the Western National Dairy Association. He will also give an address at the latter place. The Printing Department has recently printed for him a neat little phamphlet for use at such contests. The booklet contains a score-card and the rules for scoring cattle and dairy products.

The College lecture course for the present school year has been arranged for and promises to be the best ever presented. There will be nine different numbers in place of the usual six, though the price for the season ticket is the same—that is, two dollars. The dates and names are as follows: October 3, Governor La Follette; October 31, Sammis-Jackson Concert Co.; December 1, Ralph Parlette; January 9, H. S. Willett; January 31, Cleveland Ladies' Orchestra; February 8, Professor Kellogg, ornithologist; March —, Edward K. Bok; April 17, Chicago Glee Club; May —, Wickersham.

During the past three years the Farm Department has built three miles of woven-wire fence around the fields; constructed drains and culverts to prevent washing; graded roads; seeded lanes and alleys; platted fields, containing 335 acres, 184 of which are owned by the College; procured ample farm machinery, much of which has been donated by various firms; bought three good farm teams; occupied a whole building devoted to soil and crop work; engages two regular assistants, a farm foreman, two stenographers, six student assistants, and eight other employees. Truly the Farm Department is growing.

Professor Roberts' office is being fairly flooded with seed samples sent for analysis in response to a circular which was sent for publication to every newspaper in the State. The extent of seed adulteration practiced in this and adjoining states is something stupendous. The Botanical Department is rushing matter through for the press on this subject. Professor Roberts and Mr. Freeman have material completed for a bulletin on "Adulterations in Alfalfa Seed," and another on "Adulterations in Seeds of Forage Grasses." Those who have seen the illustrations pronounce them superb. In another place of the Industrialist will be found a notice to farmers concerning this matter.

The number of students enrolled during the first eight days of the fall term is 1103, of which 772 are young men and 331 young women. This is the largest first-week enrolment in the history of the College and we have no doubts, now, that the present year will be a record breaker by recording from 1600 to 1800 names in the annual catalogue.

Last December the State Academy of Science voted to hold its next annual meeting at Lawrence. The executive committee, after consulting with many members, have thought that it will be best to fix the time for Thanksgiving week. This will enable the Academy to secure favorable railroad rates, and, as most of the schools give a Thanksgiving recess, it will be a good time for teachers desiring to attend the meeting.

Looking over the Faculty roster on the second page of the Industrialist cover our patrons will find a number of new names. Some of these are the product of this College; others have been imported from other institutions. The following have been elected to positions since last Commencement: Gertrude Stump, B. S., K. S. A. C., assistant in sewing; Howard M. Watkins, M. S., Iowa State College, assistant in chemistry; Herman A. Wood, B. S., Olivet, assistant in chemistry; George C. Wheeler, B. S., K. S. A. C., assistant in animal husbandry; George P. Jackson, B. Ph., Chicago University, assistant in German; M. Sheldon Brandt, Ph. B., Yale University, assistant in architecture and drawing; Leonard W. Goss, D. V. M., Ohio University, assistant in veterinary science. A short biographical sketch of Mr. Jackson will be found in the last Industrialist. Other sketches will be published from time to time.

The Agricultural College is getting to be a cosmopolitan institution. Among the students enrolled the past two weeks are a Japanese, several Europeans, among them a Laplander, and half a dozen Filipinos. The latter arrived here on the Blue Valley Monday noon and the President took them to the Hotel Gillette for dinner, after which he comfortably quartered them in boarding and rooming clubs. That they may sooner acquire our methods they have been separated by placing two together at the different rooming places. They are bright little fellows, all of whom speak English. They have been attending high schools in the various provinces in which they lived, and several have attended a normal school at Manila. There were forty in all sent from the Island, including three girls. Four of the forty, however, are not government students, and will pay their own way, the expenses of the others being paid by the government. They are to be placed in the various state institutions of this country. Of the six sent here, five will study agriculture and one will take the mechanical engineering course. They will remain here for the entire four years' course. Following are the names and name of province from which they came: Victor F. Oblefias, Lucban, Tayabas; Maurice J. Oteyza, Manila; Ambrosio Gizon, Adriou P. Alcazar, Claro Pendoen, Iloilo, Iloilo; Juan R. Alvano, Lasvag, Ilowo Norte.

Professors McKeever and Kammeyer enjoyed the G. A. R. excursion to Colorado in August. It rained nearly every day while they were among the Rockies, but they report a big crowd and a good time all the same.

The elements have not dealt kindly of late with Professor Mc-Farland. In August a storm destroyed the corn crop and broke down a large number of trees on his farm near Olathe, and on September 18 his barn, together with a large number of implements, fourteen tons of alfalfa hay and many other things, burned to the ground. The barn was insured for \$300 but his loss not covered by insurance is probably over \$1000. The professor intends to make arrangements for erecting a new barn as soon as he can get away from Manhattan for a day or two.

Alumni and Former Students.

G. C. Wheeler, '95, has been elected assistant professor of animal husbandry in this institution.

Regent J. O. Tulloss, '99, and Mrs. Tulloss, of Sedan, are happy in the birth of a daughter on September 5.

- G. L. Christensen, '94, instructor in mechanical engineering in the Michigan School of Mines, with his bride, visited the College this week.
- J. G. Haney, '99, has returned to Kansas and is now superintendent of the Deming farms, in Labette county, having succeeded Professor Otis.
- A. W. Barnard, '05, is well pleased with his position in the turbine testing department of the General Electric Company, where he is keeping up his end of the work.

The sympathy of friends will be with Dr. J. W. Evans, '94, and Mrs. Evans, of Council Grove, in the loss of one of their twingirls. She died September 7, at about eight months of age.

Mrs. C. F. Little and Miss Bessie ['91] have gone to Kalamazoo, Mich., to visit Mrs. Ada (Little) McEwan ['86], after which Miss Bessie will go to Philadelphia to continue her medical studies.

—Nationalist.

Miss May Secrest, '92, has resigned her position as associate professor of domestic art in Ohio State University to take charge of a similar department in the California Polytechnic School, at San Luis Obispo, Cal.

- F. W. Christensen, '00, spent his vacation in August and September visiting at his home near Randolph and at the College. He is now assistant in animal husbandry and agronomy at the Pennsylvania State College.
- R. F. Bourne, '03, and Miss Edna E. Mason were married Wednesday evening, September 6, and are at home since September 20 at 1518 Troost Avenue, Kansas City, Mo. Mr. Bourne has another year in the Kansas City Veterinary College.

E. O. Sisson, '86, after a year in Europe and two years' study at Harvard, has recently been appointed assistant professor of education in the University of Illinois.

Mrs. Ary (Johnson) Butterfield, '98, visited friends in Manhattan on her way to her home in Kansas City, after some weeks spent in Colorado. With Hope Brady, '98, she visited old and new scenes around College on the 24th of August.

Invitations are out for the wedding of Dovie May Ulrich, '03, and William Armfield Boys, '04, which takes place Wednesday evening, October 4, 1905, at 8:30, at the home of the bride, 121 North Sixth street, Manhattan, Kan. They will be at home after October 25 at Lee's Summit, Mo.

A. F. Turner, '05, as teacher of agriculture in the Norton County High School, is finding his work very pleasant and thinks that the future will see a larger number of students from that locality coming this way. Mr. Turner is one whose thoroughness as a student and proficiency in agriculture will undoubtedly bring him success as a teacher of that subject.

Fred Walters ['02] and Miss Sara Sybil Stites, of Trinidad, Colo., were married at the Congregational parsonage at three o'clock this afternoon. Mr. Walters is a son of Prof. and Mrs. J. D. Walters and is a popular young man of this city, and his bride is a very charming and estimable young lady. These young people have the best wishes of many friends.—Nationalist.

F. A. Dawley, of Waldo, was present [at the State Fair] with a bunch of Poland-Chinas that did him credit. Mr. Dawley is a graduate of the State Agricultural College ['95] and since leaving that institution he has devoted his attention to breeding Poland-Chinas. He spares neither pains nor expense in securing just the breeding animals he needs for his herd and some of the results he has obtained were shown in their exhibit at Topeka. He got first and second on six-months boar, second on six-months sow, first on sow pig in very hot competition. The Poland-China show this year was probably the best in every way that was ever made in Kansas and honors won here will be valued accordingly.—Kansas Farmer.

Mr. R. S. Reed is proprietor of one of the leading lumber yards of Mitchell county, located a short distance from the Union Pacific depot in Simpson. He is erecting a new office and warerooms, of which we were unable to get a finished view. He has the best and most complete business in lumber and coal in Simpson, making it a specialty and giving it his entire attention. Mr. Reed is a native Kansan and is a descendant from old Virginia and Tennessee stock. He graduated from the State Agricultural College in 1892 and from the State Normal in 1895. He taught school until 1897, when he went into his present occupation. He owns a residence, and his yards are well shedded and well stocked with the best building material. He invites investigation, and will figure on estimates and guarantees satisfaction.—From special edition of a Beloit paper.

Bertha H. Bacheller, '88, gave a course of lectures and demonstrations at the Oklahoma City Chautauqua Assembly, June 19 to 25. A special feature of the work was to indicate how domestic science may be introduced into high schools. Miss Bacheller is also preparing a laboratory manual for use in the teaching of cooking. This will be published next year. She is still director of domestic science in the Kansas City, Mo., manual training high school.

Miss Elizabeth J. Agnew ['00] is in charge of the domestic science and art work in the public schools of Wichita. In a recent letter to this office she says, among other things: "I find my work well organized and nicely equipped, all of which is due to our Miss Staatz, who organized these departments two years ago. Everything is being made very pleasant for me here, and with an enrolment of about three hundred girls from the eighth grade and two years in high school, I think I shall be kept sufficiently busy not to get lonely. However, I shall be more than glad to see all of my Manhattan friends, on the instalment plan, of course, and trust that it may be my good fortune while here to do so. My home address is 228 N. Emporia Avenue."—Nationalist.

A most enjoyable picnic was held on Saturday, August 12, 1905, by the graduates and former students of the College in Kansas City and vicinity, at the beautiful home of Clarence V. Holsinger, '95, and Olive (Wilson) Holsinger, '95. The invitations sent out by the secretary of the association, Horace G. Pope, '94, especially requested the presence of the children of the different families represented. The picnic lasted from 2 to 9 P. M., and at 5 o'clock, P. M., an enjoyable repast was held under the trees on the lawn of the host and hostess, an abundance of good things to eat having been provided. The picnic was made lively by the presence of a number of children of the graduates and former students, and altogether about seventy-five persons were in attendance. the graduates and former students the following were noticed: George E. Rose, M. S., '98; Phil S. Creager and Clay Coburn, '91: John E. Thackrey and George W. Smith, '93; Lorena (Helder) Morse, Jennie M. Selby, Jennie (Smith) Strong, Charles R. Hutchings, Winnie (Romick) Chandler and Horace G. Pope, '94; T. W. Morse, George C. Wheeler, Carl D. Adams, Kitty (Smith) Wheeler, Clarence V. Holsinger, Olive (Wilson) Holsinger and Mabel (Selby) Laughlin, '95; Elva (Palmer) Thackrey, '96; C. E. Pincomb, '96; C. A. Chandler, '00; Arthur Helder, '04; and Charles S. Green and M. E. Chandler. The classes of '94 and '95 were the banner classes as to the number of the members present from the list of graduates. So successful was the picnic that it has been determined to make the affair an annual event. Chandler, '00, and wife have already spoken for the privilege of entertaining the graduates and former students next summer. The association will hold its annual banquet early next year. Phil S. Creager, '91, is president of the association and H. G. Pope, '94, secretary.

INDUSTRIALIST

Vol. 32

ISSUED WEEKLY BY

No. 3

Kansas State Agricultural College Manhattan

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PUBLISHED BY
PRINTING DEPARTMENT
J. D. RICKMAN, Supt.

Entered at post-office, Manhattan, Kan., as second-class matter. Act of July 16, 1894.

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THE INDUSTRIALIST.

Martin Charles and Mark

VOL. 32.

MANHATTAN, KAN., OCT. 9, 1905.

No. 3

The Names of the Days of the Week.

HE origin of the week of seven days has not been as yet fully explained. For a time two systems, groups of five days and groups of seven, existed side by side. Later on the seventh, fourteenth, twenty-first and twenty-eighth days of the month (of thirty days) were considered "evil," days on which certain things should not be done. (Cf. our superstitions regarding Friday.) This seven-day system has been traced back to Babylonia. Assyria and Babylon have only the beginnings. The first fully developed week of seven days is found among the Israelites. them the days were named according to their order in the week-"first day of the week," etc. The Greeks had a week of ten days, the Romans one of eight. The week of seven days was introduced by the Jews in the first century of our era into lands where Greek Many Romans, too, at the time of Horace kept the was spoken. But the seven-day week was introduced into Jewish sabbath. Rome chiefly by Chaldeic astrologers. The days were named according to the planets: Saturnus, Sol, Luna, Mars, Mercurius, Juppiter, Venus. The shifting of dies Solis (Sunday) to the first of the week in heathen Rome took place in the fourth century in consequence of the influence of oriental sun-worship exerted in the Roman empire in the second to fourth centuries. From Romanized Gaul and the parts of Germany under Roman dominion these names of the week spread further. Among the Germans the names of Teutonic divinities were substituted for the Roman gods, each for the one whose attributes most closely corresponded. In Christian-Latin the days of the week were named "feria" (originally "holiday;" kept in German Ferien), as feria secunda for Monday, feria tertia for Tuesday, etc. Of the Celtic languages, the British dialects (Wales, Cornwall) took up the planet names, while Gaelic and Irish, which received the names later, show Christian influence in naming the days of the week. and through them the Lithuanians received the week with Christianity, whence, as one would expect, their names of the days of the week rest upon the Jewish and Christian method of counting

from the Sabbath. The foregoing makes unnecessary any but a very brief discussion of the names of the several days of the week. These are given below. It is intended to refer in this paper simply to the Indogermanic languages. The mention of any other language here is simple incidental.

SUNDAY. - Sunday shows the forms Sunday, Sonday, Sunneday, Sonenday, etc. in Middle English, and these go back to Old English, (Anglo-Saxon) sunnan-deg "Sunday," literally "day of the sun." In the other Germanic languages we find corresponding forms: Old Saxon sunnun-dag, Old Frisian sunnan-di, sunnandei, sonnendei, Middle Dutch sondag, Dutch zondag, Middle Low German sunnendach, sondach, Old High German sunnuntag, Middle High German sunnentac, suntac, German Sontag, Old Norse sunnudagr, Swedish and Danish sondag. The Scandinavian forms show the influence of popular etymology; Swed. and Dan. sondag would seem to be a compound of dag and son "son," i.e. "the Son, Christ." British disul and Welsh dydd sul "day of the sun" with the Teutonic forms quoted rest upon Latin dies solis, solis dies "day of the sun," "Sunday." The Christian designation of the day is seen in Old Norse drottensdagr "day of the Lord" (cf. O. E. dryhten "lord, master"), in O. H. G. frontag "day of the Lord" (cf. G. Fronleichnam "Corpus Unristi," Frondeinst, etc.), in Old Irish domnach, and in the Romance forms: Ital. domenica (from Lat. dominica), Span. and Port. domingo (from dominicus), Provencal dimenge, dimergue, French dimanche, O. Fr. diemenche (the Prov. and Fr. forms from dies dominicus) "day of the Lord." Latin (dies) dominicus, dominica, etc. "Lord's day" has an exactly corresponding form in Greek kuriake. The Latin designation octavus dies "eighth day of the old week" ("first of the new") is unique. Another name for Sunday is found in the Slavic-Lithuanian group: Old Church Slavonic nedelja, Old Prussian nadele, Lithuanian nedele "day of inactivity."

Monday.—The second day of the week has at least five different designations. Monday has the corresponding M. E. forms Monday, Monenday, from O. E. monanday (rarely the contracted form monday), literally "day of the moon." English Monday has a shortened o due to the fact that two consonants followed the originally long vowel (cf. feet and fetlock both from O. E. fet). Similar forms are shown by the other Teutonic languages: O. Fris. monendei, monadei, D. maanday, M. L. G. mandach, manendach, O. H. G. manetac, M. H. G. mantac, G. Montay, O. N. (Icel.) manandayr, Swed. manday, Dan. manday. These are simply translations of Lat. lunae dies "day of the moon." The Latin has given us most of the Romance names of Monday: Ital. lunedi, Fr. lundi,

Prov. dilus, Catalonian dilluns from lunae dies, dies lunae; Span. lunes, Prov. also luns (with the same ending as in martes; vide Tuesday), Walachian luni, Venetian luni. The Greek has a name exactly similar to Lat. dies lunae, viz. hemera selenes. Corresponding to Hebrew "second day of the week" we have Lat. secunda feria (from which Port. segunda feira) and New Gr. deutera, literally "second." A third designation of the day is seen in N. H. G. dialectal guotemtag, gutentag really "good day" (cf Wednesday). The Slavic-Lithuanian group names the day "After-sunday:" O. Ch. Sl. ponedeliku, O. Pr. ponadele, Lith. panedielis. The Slavic week begins with this day. Hence we have Friulian prindi, originally "first day."

TUESDAY.—We have for Tuesday four sets of names that are easily explained, besides several for which no convincing explanation has been found. The first series of names consists of Gr. hemera Areos, parallel with Lat. dies Martis "day of Mars," and of the descendents of these. Lat. dies Martis (also Martis dies) has given us Fr. mardi, Ital. martedi, marti, Prov. and Catal. dimars. Span. martes, and Prov. mars are from genitive Martis. The Celtic languages have corresponding forms: Ir. mairt, M. Welsh dyw mawrth, Brit. demeurz. A similar form is seen in Albanian marte. The Teutonic tribes took the name of the day from the Romans, and two sets of names evolved about the beginning of the fourth The first of these is O. H. G. (Alemannic) zistac, M. H. G. ziestac, ziestag, zistac, zistag, O. E. tiwesdæg (whence M. E. Tewisday, Tiwesday and E. Tuesday) and O. N. Tysdagr (whence Swed. Tisdag and Dan. Tirsday) "day of Tiwaz." The Germanic divinity Tiwaz was considered by the Teutons as identical with Mars. Tiwaz, the Old Teutonic form of the name, is cognate with O. H. G. Zio, O. N. Tyr, Gr. Zeus, O. Lat. (genitive) Diovis, later Jovis, (cf Juppiter, gen. Jovis patris), Sanscrit dyaus. In Greek myth Zeus was the chief god, so Zeus (Tiwaz) became in Germanic thought The second set of names among the Teutonic the god of war. dialects corresponding to dies Martis is M. L. G. dingsedach, N. L. G. dingsdag, and M. D. dinxendach, D. dinxendag. From North Germany the name pushed southward. Luther has Dinstag. Since the beginning of the seventeenth century we find Dienstag in Middle Germany, and Zinstag on the upper Rhine. The former has become the N. H. G. form. In the series of forms just quoted we find the name Tinxus "god of the assembly of the people" (identical with Norse thing "assembly of the people," and E. thing originally "assembly," then "an act of the assembly," then "affair," hence "thing"). Another name of the day is found in Gr. trite sabbatou (literally "third sabbath"), N. Gr. trite, Lat. feria tertia (whence Port. terca feira). The Slavic-Lithuanian group names Tuesday the "second, other day:" O. Ch. Sl. vutoriniku, Lith. utarninkas, etc. In the Swabian dialect we find the form aftermæntag literally "Aftermonday." Bavarian erchtag, eritac, irchtag, iritag, and O. Pr. wissaseydis are names for Tuesday which have not yet been explained. Among the ancient Greeks Tuesday played the same role as our Friday, an unlucky day, and it is so considered by the Greeks to this day.

Wednesday.—For this day Greek has hemera Hermou "day of Hermes," corresponding to Lat. dies Mercurii "day of Mercury." Romance forms which have sprung from dies Mercurii and Mercurii dies are Fr. mercredi, Ital. mercoledi, mercordi, Prov. dimercres, Catal. dimecres. Span. miercoles and Prov. mercres show in their endings the influence of their words for Tuesday. The Celtic names of the day which are from the same source, are as follows: M. Welsh dyw merchyr, Brit. demercher, etc. Albanian merkur corresponds to these. A less close correspondence is E. Wednesday which is the continuation of M. E. Wodnesdei, Wednesnai from O. E. Wodnesdeeg, "day of Woden, Odin." Parallel forms are D. Woensdag (from Woedensdag) O. N. Othinsdagr, Swed. and Dan. Onsdag (for *Odensdag). Woden, Odin literally "the furious one," i.e. "the mighty warrier" would seem to have little in common with Mercurius. Corresponding to forms given under Tuesday we have here Gr. tetarte sabbatou, and Lat. feria quarta (whence Port. quarta feira) literally "fourth sabbath, etc." A third distinct name of the day is seen in Lat. media hebdomas, Tuscan mezzedima "middle of the week," a name which originated after the end of the tenth century. O. H. G. mittawecha, G. Mittwoch corresponds. The Slavic-Lithuanian forms, O. Ch. Sl. sreda really "heart, middle," Lith sereda. O. Pr. possisawaite, show German influence; Wednesday was not the middle of the Slavic week since the week with them began with Monday. In Ir. cet-oin we have the meaning "first fastday;" of the Irish for Friday. Among the German dialects we find Bavarian afterertag (cf Swabian aftermæntag "Tuesday," and Bav. eritac etc. "Tuesday"), L. G. gudensdag which is perhaps identical with E. Wednesday, and Alemannic guotemtag probably "good day," "Good Wednesday" (cf. Monday).

Thursday.—Thursday is the descendent of M. E. Thursday, Thorsday, Thoresday, a contracted form of M. E. Thunresdaei which comes from O. E. Thunres daeg "day of Thor," "day of Thunder." Corresponding forms are found in the other Germanic dialects, viz. O. Fris. Thunresdi, etc., D. Donderdag (i. e. Donarsday), M. L.

G. Donerdach, O. H. G. Donarestag, M. H. G. Donerstac, N. H. G. Donnerstag, O. N. Thorsdagr, Swed. and Dan. Torsdag. names are translations of Lat. dies Jovis "day of Jove, Juppiter" which has as its Greek correspondent hemera Dios. From the Latin springs the usual crop of Romance forms: Fr. jeudi, Ital. giovedi, Prov. and Catal. dijous from Jovis dies and dies Jovis; Span. jueves and Prov. jous from Jovis. We have also derived forms in the Celtic dialects: M. Welsh dyw ieu, Brit. diziou etc. series of names is found in Gr. pempte tou sabbatou, N. Gr. pempte, Lat. feria quinta (whence Port. quinta feira), and M. H. G. pfinztag (pfinz being a borrowing from Gr. pempte), all with the meaning "fifth restday, etc." Similar to this set of names is the list in the Slavic-Lithuanian group: O. Ch. Sl. cetvrutuku, Lith. ketwergas, O. Pr. ketwirtice "the fourth," Thursday being the fourth day of the Slavic week. Irish has dardain really "(day) between the fasts;" cf. the Irish of Wednesday and Friday.

Friday.—The English name of the day goes back to M. E. Fryday, Fridai, Vrideie, etc., from O. E. Frige dag with the contract form Frigdeg "day of Freia." We find the corresponding forms in the other dialects: O. Fris. Frigendei, Friendei, M. D. Vridach, D. Vrijdag, M. L. G. Vridach, O. H. G. Friatag M. H. G. Vritac, G. Freitag. The Teutonic forms are patterned as usual after the Latin; Freia corresponds to Venus. From Lat. Veneris dies, dies Veneris proceed Ital. venerdi, Fr. vendredi, Prov. and Catal. divendres; Span. viernes and Prov. venres are from Veneris, and still other dialects have corresponding forms. Celtic forms, also from the Latin, are M. Welsh dyw gwener, Brit. derguener, etc. has prosabbata and paraskeue "day of preparation." Another form is found in Lat. feria sexta (whence Port. sexta feira) originally "sixth holiday." The Slavic-Lithuanian names of Friday—O. Ch. Sl. petuku, O. Pr. pentinx, Lith. petnyczia—mean "the fifth" (cf Thursday). Irish oin didin really "last fast" (cf. Wednesday and Thursday) is a name which has its parallel in Sardinian chenaura, kenabura (from Lat. cena pura, so-called because only lean meat was partaken of), and in O. N. (whence the same word in O. E. as a borrowing) fostudage "fast day." A sixth form is seen in Albanian premte, perhaps from mbremte "evening" in the sense of "eve" (cf. Christmas eve, etc.) as in rabbinical usage and among the Christian Syrians Friday was called the "day before the Sabbath;" cf. G. Sonnabend "Saturday." Among Christian nations Friday is looked upon as an unlucky day, it having been the day of Christ's passion; cf. Tuesday.

SATURDAY.-Lat. dies Saturni (corresponding to Gr. hemera

Kronou, "day of Chronus") gives rise to the Celtic forms Ir. sathorn, satharnn (from O. Ir. dia-sathairn, sathairn), M. Welsh dyw sadwrn, Brit. desadorn all really meaning "day of Saturn." name of the god is preserved also in E. Saturday (from M. E. Saterday, Satyrday, Seterdai, etc., and these from O. E. saterdæg, saterndæg) O. Fris. saterdei, M. D. saterdag (whence D. Zaturdag, Zaterdag), M. L. G. Saterdach, Satersdach (whence L. G. Saterdach). A widely distributed series is found in Hebr. sabbat and descendents. From the Hebrew is derived Gr. sabbaton, also Lat. dies sabbati, the latter producing Fr. Samedi, Prov. dissapte; Ital. Sabato, Span. and Port. Sabado, Wallonian Sambete, Roumanian Sambata, etc. Here also belong the Germanic forms: Goth. sabbato dags and O. H. G. sambaztag (whence M. H. G. sampstac and samztac and N. H. G. samstag) "Sabbath, Saturday." The series extends also into the Slavic-Lithuanian group, e. g.: O. Ch. Sl. sabota, Lith. subata, O. The forms with m lead us back to the Orient where we find sambata in use among the Christian Abyssinians as also the N. Pers. form samba. A peculiar form is offered in Germ. Sonnabend "Saturday" literally "evening, i. e. eve. of Sun(day)," hence "day before Sunday;" cf. forms under Friday. Old Norse presents the fourth of the Germanic names of the day, viz. laugadagr and thvattadagr literally "bath day." JOHN V. CORTELYOU.

Our Model Dairy at the State Fair.

Mr. Hayes Walker, the correspondent of the *Daily Drovers' Telegram*, of Kansas City, makes the following comments on the College Dairy exhibit.

"One of the most interesting exhibits on the grounds is the dairy department of which I. D. Graham is superintendent. The exhibit is quartered in a special building in which a model creamery is in actual operation.

"Each morning a thousand pounds of milk is received, and during the day this milk goes through all the operations necessary to butter-making on a large scale and in full view of the spectators. The cream is first skimmed or separated, then sterilized or Pastuerized, tested and churned. The machinery for these operations was loaned by different manufacturing concerns.

"Either side of the building is reserved for advertising display by cream separators and other enterprising manufacturers. A feature of the display is an imitation, moulded in butter, of the dairy building of the Kansas State Agricultural College at Manhattan.

"Superintendent Graham is particularly proud of this exhibit. He says it is the only model dairy or creamery thus shown west of the Mississippi River. The machinery shown in operation is the latest produced for use in the art of butter-making. Altogether, this is one of the most appreciated displays in the fair grounds.

"The machinery referred to was loaned for this purpose by the Creamery Package Company, of Kansas City, and the Jensen Manufacturing Company, of Topeka. The Jensen Company manufactures Pasteurizers, starters, steam boilers, etc., and the generosity of these firms in loaning this machinery for this exhibit is fully appreciated by the superintendent. In a large glass refrigerator was shown the dairy and creamery butter that was entered in competition for the State Fair premiums. blue and red ribbons had been tied upon these exhibits a great deal of interest was manifested by the farmers and their wives, and several who did not succeed in securing ribbons asked Professor Erf, who judged the butter, to tell them wherein they These ladies were after instruction rather than had failed. premiums and felt amply repaid for their efforts in the instruction given by Professor Erf.

"In connection with this exhibit there was held a four-days butter test for farmers' or grade cows. A premium was offered for the best and second-best cow who showed the largest amount of milk in four days, and the largest amount of butter-fat in the same time. Both of these premiums were won by Mr. A. J.

White, a dairyman of Topeka.

"Premiums were also offered for the Agricultural College student showing the greatest proficiency as a butter-maker during the week. These premiums were contested for by H. R. Desler, G. M. Caldwell, and T. Suzuki. The latter is a Japanese student at the Agricultural College who has not yet thoroughly mastered the intricacies of the American language but who is a very bright and capable student. The prises were awarded as follows: First to H. R. Desler, score 93; second to T. Suzuki, score 91\frac{1}{4}.

"The College students in charge of the operations of the model dairy made themselves exceedingly popular with the throngs of visitors who filled this building at all hours of the day by furnishing them unlimited quantities of fresh, sweet buttermilk to drink. The butter manufactured during the week was taken each evening by the Miller Bros., proprietors of the 101 Ranch Wild West show, at 30 cents per pound. The hog men also benefited by the presence of the model dairy and secured quantities of sweet skimmilk for their hogs. This exhibit was purely educational and was generally considered the most attractive feature of the regular exhibits of the fair."

THE INDUSTRIALIST

Published weekly during the College year by the Printing Department of the

Kansas State Agricultural College Manhattan, Kansas.

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Local Notes.

The carpenter-shop has started work on a large glass case, to be placed along the north wall of the museum.

The women's short course in domestic science opened October 3 with an enrolment of 55 bright young women, which is an increase of more than twenty per cent over any previous year.

The classes in junior domestic science are doing laboratory work in canning, preserving, and jelly-making. Three hours twice a week for six weeks is devoted to work in preservation of food.

The Mechanical Department has installed four new incandescent arc-lamps in the drafting room. The light of these lamps will be reflected against the ceiling and diffused so as to obviate the shadows.

The Nationalist publishes a very interesting letter by Dr. N. S. Mayo, formerly professor of veterinary science at this College and at present chief of the Bureau of Animal Industry of the Republic of Cuba, at Havana.

Assistants Ada Rice and Ina Holroyd spent their vacation in Massachusetts, where they attended the summer school of Harvard University. They visited many points of interest while in the East and report an invigorating and profitable summer.

Walter T. Swingle, '90, physiologist in the Bureau of Plant Industry, is joint author with O. F. Cook of bulletin No. 81 of that bureau, "Evolution of Cellular Structures." This deals with the problems of heredity in a novel manner but one that cannot be briefly abstracted.

The Heat and Power Department has just completed the setting of two new boilers of 125 horse-power each. The boilers were manufactured at the Atlas Engine Works, of Indianapolis, Ind., and were procured through the Great Western Manufacturing Company in Kansas City, Mo. A third boiler of like capacity will be placed in the new annex to the boiler-house as soon as this is completed.

Captain Shaffer has announced the following promotions of officers of the College battalion: Co. "A"—E. J. Evans, Captain; L. E. Hazen, 1st Lieut.; O. O. Morrison, 2nd Lieut. Co. "B"—C. I. Weaver, Capt.; John Calvin, 1st Lieut.; N. H. Clark, 2nd Lieut. Co. "C"—H. R. Heim, Capt.; M. R. Shuler, 1st Lieut.; J. W. Painter, 2nd Lieut. Co. "D"—C. H. Withington, Capt.; J. M. Ryan, 1st Lieut.; Clarence Lambert, 2nd Lieut.

Asst. Flora Rose, of the Domestic Science Department, spent her summer vacation on the shores of the Great Lakes in Canada, and returned last week to resume her work with the shortcourse girls, greatly refreshed and invigorated. Her mother accompanied her back to Manhattan.

Gov. M. La Follette, of Wisconsin, and senator-elect of that state, lectured in the College Auditorium last Monday night on "Representative Government." The governor is a Frenchman by descent. He looks typical and is certainly a fighter and reformer. His lecture was full of good, wholesome thought and the fire of righteousness, but it was too long for a mixed audience.

Prof. J. D. Walters has commenced the erection of an eightroom residence on Bluemont Avenue between Third and Fourth streets. He intends to occupy it himself as soon as it can be completed. The building will be of modern exterior and will be provided with bath-room, laundry, furnace, hard and soft water, electric light, and plenty of closets and storerooms.

Major Edw. J. Vattmann, M. A., formerly Chaplain U. S. A., and at present assistant Superintendent of education of the U. S. insular bureau, visited College on Wednesday to look after the six Filipino students who were enrolled at the beginning of the fall term. The Major was very much pleased with the aspect of the College and the condition of his wards from Manila. He was accompanied by Father Shields of Manhattan.

Prof. M. L. Ward, of Ottawa (Kansas) University, visited College on Friday and feasted his eyes from the Auditorium platform on the multitude of students in attendance at the chapel exercises. The professor was connected with this College in the seventies and early eighties, as the head of the English Department. He also taught mathematics and surveying for a time. He seemed interested in the phenomenal growth of the institution and expressed surprise as he walked from classroom to classroom and building to building in company with Professor Walters, with whom he used to occupy adjoining rooms in the old Armory twenty-nine years ago, when the College had but one hundred fifty students in actual attendance.

The newly elected assistant, Herman A.Wood, B. S., of the Department of Chemistry, is a graduate of Olivet (Mich.) College. After leaving college he taught two years in the city schools of Marshall, Mich., as instructor in physics and chemistry, and later on for a year analytical and organic chemistry in the Southern Homeopathic Medical College of Baltimore, Md. Since leaving Olivet he did graduate work to the extent of half a year in the University of Michigan, and two years in the chemical department of Johns Hopkins University. Before coming to the Kansas State Agricultural College he was chemist in a manufacturing plant at Belleville, Ill., for nearly a year. Mr. Wood comes to this College with excellent recommendations and will undoubtedly prove to be a strong man in his assigned work.

Alumni and Former Students.

J. T. Skinner, K. S. A. C. '03, has gone to Lawrence to take up a position as mechanical engineer.—*Mercury*.

Miss Anna Pfuetze ['99], left Tuesday for Olathe where she will teach domestic science in the school.—Nationalist.

Geo. M. Logan, '02, is comfortably located at 446 W. Congress street, Chicago. He is again attending the Rush Medical College.

Miss Eva Rigg ['02], who visited friends in town recently, is teaching domestic science in the Fisk Training School at Kansas City.—Nationalist.

Henrietta W. Calvin, '86, has been engaged to deliver a course of weekly lectures to the nurses in Christ's Hospital, Topeka. These will be given Mondays.

James E. Payne ['87], of Buena Vista, Colo., has rented a residence on West Poyntz. He brings his family here because of the College advantages.—*Nationalist*.

John H. Osterhaus, of Junction City, a graduate of the K. S. A. C. ['01], left Saturday for the Philippines, where he will take up his work as veterinary surgeon in the army.—*Mercury*.

Though somewhat belated we must not omit to record in these columns the marriage of Miss Phœbe Haines, '83, to Mr. L. A. McKeen. The happy event took place August 29.

Miss Mary Wilkin and the Messrs. Wilkin, of Bow Creek, Kan., former students, mourn the death of their father which occurred September 29 at San Luis Obispo, Cal. Mr. Wilkin was an ideal rural citizen and his death makes an irreparable break in the family.

We learn from the *Herald* that Nellie McCoy, '05, and Leon D. Cover, student in 1900, were married Sunday, October 1, at the home of the bride's parents, Meriden, Kan. After a tour including the Lewis and Clark Exposition they will be at home in Winslow, Ariz.

The genial countenance of Albert Dickens, '93, since October 1 has worn a smile indicating more than usual satisfaction with his lot; and well it may, since that date marked the addition of a son to his family in which an unusually bright little daughter already had a large part. Mrs. Dickens, it will be remembered, was Bertha Kimball, '90.

Raymond A. Pond, '98, is the author of "The Biological Relation of Aquatic Plants to the Substratum," which is a contribution to the biology of the Great Lakes and extracted from the United States Fish Commission Roport for 1903. It records the observations made upon the growth of plants in the Great Lakes, and suggests important functions served by the larger species in taking the salts from the soil which later become available to other species that are of greater importance in supplying food directly or indirectly to fish.

J. A. Conover, '98, wishes to be remembered to all old friends and classmates. He has returned to Kansas from Iowa to take up life on the home farm and wishes the INDUSTRIALIST sent to his new address, Sabetha, Kan.

Walter R. Ballard, '05, writes from Kansas City, Mo., that he is employed at one of the parks doing greenhouse work. C. A. Chandler, '00, is superintendent of the park system there. Mr. Ballard is already looking forward to the Kansas City alumni banquet. His address for the present is 2710 Woodland Avenue.

W. A. Boys, '04, and Dovie Ulrich, '03, were married Wednesday evening, October 4, at the residence of the bride's mother. Reverend Leete performed the ceremony. Among the guests were Miss Edith Felton, junior in 1904, and J. W. Fields, '03. The new couple will start out rich in the good wishes of friends. Miss Ulrich's popularity was testified to by several generous "showers" preceding the wedding days. Mr. and Mrs. Boys will reside at Lee's Summit, Mo.

H. H. Johnson, student in 1887-'88, now superintendent of the Jacarilla Apache Training School, Dulce, N. M., visited College last Thursday. Mr. Johnson spent two years in the Massachusetts Institute of Technology and later graduated from the civil engineering course of the University of Kansas. He has been in the Government service about ten years. He was very much interested in the transformation that the College has undergone during the eighteen years since he was a student.

Maude Failyer, '03, and Prof. R. J. Kinzer surprised nearly everybody by their wedding Sunday evening, October 1, at her home. The wedding was a very pretty home ceremony performed by Rev. O. B. Thurston. Corinne Failyer, '03, and C. H. Kyle, '03, were bridesmaid and groomsman. Mrs. Kinzer has lived in Manhattan all her life and is a general favorite with all of her acquaintances, who will wish complete fulfilment of her anticipation of joy. Professor Kinzer has been with us two years and has been rapidly advanced from the position of assistant to that which he now holds at the head of the Department of Animal Husbandry; but of all his good fortune this is best. They will be at home after November 1 at 502 Moro street.

Wednesday evening, September 27, at the home of the bride's brother, Dr. H. A. Brous, occurred the wedding of Miss Florence J. Brous ['84] and James Leonard Smalley. This was a quiet wedding in the presence of the immediate family and a few close friends. Rev. J. H. Lee officiated. The bride grew to womanhood here and is very highly regarded by a large circle of friends. For some years she has been instructor in history in the Kansas City, Kan., high school. Mr. Smalley is a member of the well-known law firm Alden & Smalley of Kansas City, Kan., and he stands high in his profession. Mr. and Mrs. Smalley have returned to Kansas City and will be at home to their friends, after about two weeks, at 608 Freeman Avenue.—Nationalist.

For Farmers' Institutes.

At the recent September meeting of the Board of Regents at the Kansas State Agricultural College, Mr. J. H. Miller, formerly editor of the Holton *Tribune*, was elected field secretary and organizer of the farmers' institute work. He will have full charge in the matter of arranging institutes, determining dates, distributing literature, etc.

Mr. Miller will organize the State into districts, in which institutes will be held in series of 15 to 20, as to proximity and railroad connections. Institutes will also be held in localities

where needed, but which have not requested them.

General courses of emphasized subjects will be assigned to districts and the lecturers will be chosen from the College Faculty because of special merit.

Railroad schools will be arranged for and the secretary will look after rural school work, and see to all advertising in connec-

tion with the institute work.

Under the former plan the work has been in charge of a committee from the Faculty, but has become so extensive and important that the employment of a field secretary became a necessity. A similar committee will still have oversight of the work. The new plan will contribute largely to the systematizing and efficiency of the farmers' institute work in this State.

Investigation of Tree Diseases.

There are a number of important investigations in plant diseases being carried on by the Botanical Department at the

Kansas State Agricultural College, Manhattan.

Prof. H. F. Roberts, the Experiment Station Botanist, has now under investigation the disease which is proving so destructive to the Austrian pine in this and other localities. The Austrian pine is the most commonly planted conifer, next to the red cedar. It is highly valued for ornamental purposes and as a windbreak. The general effect of the disease is to dry out and kill the top of the tree, or the large branches near the top, usually on the It works most vigorously in the late winter and early spring. The fungus was at first thought to be identical with one which infests the conifers of Northern Europe, particularly in Norway and Sweden. A closer investigation proves this idea erroneous, and the opinion now prevails at the College that it is some new and as yet undescribed species. The fungus causing the disease has been isolated in pure cultures, its morphology and habits studied, and inoculation experiments made. are practically ready for publication, with suggestions for treatment of the disease.

The disease known as "plum-tree canker," which causes great destruction, especially in Kansas and Nebraska, and the cause of which has never been determined, is now in process of investigation. Its effect on the tree is to produce swollen, distorted branches. An infested tree dies in from two to three years.

The Japanese plum is the chief sufferer.

September Weather.

The records of the weather station at the Kansas State Agricultural College for September show the month to have been one above normal temperature. The mean maximum was 84 degrees, with a mean minimum of 60 degrees. The highest temperature was 95 degrees on the 24th, the lowest 42 degrees on the 4th.

Rain fell on ten days, 1.3 inches on the 5th. The total for the

month was 4.32 inches.

There were 14 clear days, 11 partly cloudy and 5 cloudy.

No frost occurred during the month. High wind on the night of the 18th did some damage to orchards. The weather has been such that the ground has been in excellent condition for fall seeding. With the exception of a small per cent, the corn crop is now safe from killing frosts.

The Mechanical Department has recently cast a large drop hammer with anvil for breaking up old castings. The hammer weighs 735 pounds and the anvil 992. These are probably the largest castings ever made in the College foundry.

The Board of Regents at its session last week divided the Dairy and Animal Industry Department into a Dairy Husbandry Department and an Animal Husbandry Department, and placed the former in charge of Prof. O. E. Erf and the latter in charge of Prof. R. J. Kinzer.

Plans are already being made by the Domestic Science Department for another teachers' course, to be held in May, June, and July. The course held last summer was attended by eighteen teachers and proved such a decided success that requests are already coming in for a repetition and continuation of the work.

The Horticultural Department has gathered its apple crop, which this year is remarkably free of apple scab and codlingmoth. The following varieties have produced as large a crop as ever before: Cooper's Early White, Fanny, Benoni, Pennsylvania Red Streak, Mother, Isham Sweet, Stewart's Golden, Kinnaird's Choice, and Loy. The potato crop was also very good. Several of the varieties bore from two hundred twenty-five to three hundred bushels per acre. Carmen No. 3., Rural New Yorker, Eureka, Vermont Gold Coin, and Nebraska did best.

Captain Shaffer has recently received a letter from the Bureau of Insular Affairs, Washington, requesting that he recommend two likely graduates of this College for appointment as Third Lieutenants in the Philippine Constabulary, at a salary of \$1100 per year. The Captain considers this a good opening for a young man who has an ambition for a military career and will be pleased to give further information in the matter to any graduate of '04 or '05 who may be interested. College graduates are required to pass the physical examination only. Lieut. Colonel Harbord, a graduate of the class of '86 of this College, is assistant chief of this branch of the Philippine Government.

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INDUSTRIALIST

Vol. 32

No. 4

ISSUED WEEKLY BY

Kansas State Agricultural College Manhattan

36

PUBLISHED BY
PRINTING DEPARTMENT
J. D. RICKMAN, Supt.

Entered at post-office, Manhattan, Kan., as second-class matter. Act of July 16, 1894.

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	HERBERT F. ROBERTS, A.B. (U. of K.), M. S. (K. S. A. C.)
	WILLIAM A. MCKEEVER, Ph. M. (Univ. of Chicago)
	EDMUND B. McCormick, S. B. (Mass. Inst. Tech.), Prof. of Mech. Engineering, Supt. of Shops
	ALBERT DICKENS, M. S. (K. S. A. C.)
	ALBERT M. TEN EYCK, B. Agr. (Wisconsin)Professor of Agriculture, Supt. of Farm
	MRS. HENRIETTA W. CALVIN, B. S. (K. S. A. C.)
	RALPH R. PRICE A M (II of K)
	JULIUS E. KAMMEYER, A. M. (Central Wesleyan College) Professor of Economics
	OSCAR ERF, B. S. Agr. (Ohio University)
	PEARL M. SHAFFER, Captain Twenty-fifth Infantry, U.S. A Professor of Military Science
	JOHN V. CORTELYOU, A. M. (Uni. of Neb.). Ph. D. (Heidelberg). Professor of German
	OLOF VALLEY, B. M. (Chicago Conservatory) Professor of Music
4	F. S. SCHOENLEBER, D. V. S. (Chicago Vet. College) Professor of Veterinary Science
1	ROLAND J. KINZER, B. S. Agr. (lowa State College) Professor of Animal Husbandry
	AIOSHIIA II RICKMAN (I T II)
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	MISS LORENA E. CLEMONS, B. S. (K. S. A. C.)

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	William R. LewisJanitor
	Janitor

17.77 W.Day. 5.75

THE INDUSTRIALIST.

VOL. 32.

MANHATTAN, KAN., OCT. 16, 1905.

No. 4

Domestic Science Clubs.

ANY requests come to the Domestic Science Department of this institution for suggestions for domestic science The purpose of these clubs is to offer to women in Club outlines. their own homes some of the opportunities now offered to young women students, that they may obtain a scientific knowledge of the fundamental facts as they occur in the household. are good, but that club which will cultivate a woman's brain, broaden her viewpoint and at the same time increase her interest in that which is necessarily her occupation cannot but be more advantageous than a club which only pursues subjects remote in time and lacality from her immediate surroundings. While the primary reason for domestic science clubs is for a better knowledge of home conditions, and therefore for more hygienic and economical living, it cannot but result in interesting women in scientific study. There is as much opportunity for original investigation while baking bread or making jelley as would that woman have were she out of her home and investigating along the more There is in the artistic arrangement of popular biological lines. a home an incentive to the study of color effects equal to a course of lectures on the art of some foreign country.

Of course, no woman can be a perfect home-maker when she is nothing more than merely a good housekeeper; but no woman can be a home-maker who is not a good housekeeper. It is sometimes argued that the daily routine work of a household is drudgery; that it is beneath an educated woman to thus "drudge;" but it should be remembered that all the useful men and women in the world work; that the educated man, when completing his college course, does not expect to settle down to a life of ease, wherein he may pursue literature or art or continue his study of the languages; he expects to go out into the business or professional world and give to the world a good, honest-day's work each day, in return for which the world will give him a living. In like manner the educated woman is only educated that she may be of more use to the world. As in the case of the man, she should not hope

for a life of leisure, wherein she could calmly pursue her favorite studies, but should look forward to a life of energetic labor, wherein the pursuit of her special likes might enter as a recreation and perhaps contribute to her better daily efforts, but not where she should be freed from all responsibility and allowed to

yield to whatever impulses she may have.

It is an encouraging sight when so general a demand for this variety of study is made. In years past, girls were trained to household duties in their own homes. In our more recent times, girls are so crowded with school and college studies that their mothers have no opportunity to give them lessons in good house-The result of it is, that the young women assume the duties of housekeepers and wives without any knowledge of the profession upon which they are entering. These untrained women have many bitter experiences, and too often grow to dis-To them the study club in domestic science like their home life. should prove both helpful and interesting. Older women realize that there are many ways that are better than the ones to which they have been accustomed, and that many of the processes, with the working of which they are familiar, rest upon causes that are The "whys" and "wherefores" of housekeepto them unknown. ing are not known so well as are the "hows," and these "whys" and "wherefores" are the subjects investigated in these clubs.

The following outline is one offered as being suggestive, and doubtless can be modified with advantage. Perhaps it would be well to alternate purely cultural work with the subjects here presented. I would suggest that every fourth meeting be a meeting open for the husbands. Men are more truly interested in household questions than most women realize, and their suggestions are often practical and to the point. I have little faith in any line of work which limits its possibilities to one sex, and the sound reasoning of a good business man is frequently of material aid to the pursuit of a subject which might be considered strictly feminine. More than that, the comfort of a man is quite as much affected by home conditions as is the well-being of a woman, and it seems only fair that his opinion should be occasionally considered.

The outline following assumes the consideration of three lines of study simultaneously—home sanitation and household management, food and cookery, and hygiene and home nursing. Perhaps an equally desirable arrangement could be made where various phases of one subject were considered at one meeting and of some other subject at the next meeting. The following is a possible

outline. Others will be given if desired.

Goster With Miles Pro

SESSION I.

The Home Site: Effect of location upon health. History of Cookery, and the Evolution of Cooking Utensils. Baths: How and why we take them.

(Discussion after each subject.)

SESSION II.

The Ideal Cellar, and Its Care. Food: Its uses and abuses. The Effect of Mental Attitude upon Physical Health.

(This last might be presented by a physician.)

SESSION III.

Walls and Rooms of a House; together with inside furnishing of walls, floors, and wood-work. Cereals: How and why they should be cooked. The Ideal Sick Room and Its Care: How much may we do in our own homes toward providing ideal sick rooms.

SESSION IV.

(These subjects are intended for the husbands to speak upon.)

Household Waters: Source, contamination, and purification. My Mother's Bread. A Man's Ideas Concerning a Home.

SESSION V.

Sunshine and Fresh Air. Story of the Plant that Grows in our Bread. Micro-organisms: What they are, where they grow, and what they do.

SESSION VI.

Disposal of Household Sewage and Waste. What may be done with Milk. Diet of a Child from Birth until Ten Years of Age.

SESSION VII.

Our Lawns and Gardens: What they mean to the inmates of a home. Fruits: "To can or not to can;" that is the question. The School Building and the School Yard.

SESSION VIII.

(Papers read by men.)

The Debt We Owe to Our Children. What Portion of an Income Should be Spent for Food. How Should a Woman be Educated?

SESSION IX.

An Ideal Kitchen and its Furnishings. Table-setting and Serving. How Shall We Entertain Our Guests?

SESSION X.

Dust and Its Dangers. Consideration of Menus: With reference to Cost and Health. "Blue Monday:" Labor-saving methods.

Perhaps the above will be sufficient to suggest what might be done along this line. The meetings could be opened with quotations about homes, cooking, motherhood, child-life, etc. Some other subjects that might have been incorporated in the outline are: Motherhood; How to Impress Character upon Children; Saving Steps; What Not to Do; How Shall a Woman Keep Mentally Abreast of Her Husband; etc.

I might mention a few books that will be found helpful in preparing the above subjects; Reid's Practical Sanitation, Harrington's Hygiene, Clark's Care of The House, Week's Text-book on Home-nursing, Thomson's Practical Dietetics, Hutchinson's Food and Dietetics, and the Farmers' Bulletins, issued by the United States Department of Agriculture, at Washington.

HENRIETTA W. CALVIN.

The Insect Tax.

The Year Book of the Department of Agriculture now being distributed contains a most interesting article on this subject, written by C. L. Marlatt, a graduate of this College and for several years U.S. entomologist, from which the material here presented has been obtained. He says, in referring to the cotton, that the famous boll weevil against which the Government has been making such a strong fight, does about \$20,000,000 worth of harm annually. It came from Mexico originally, and has been marching northward and eastward through Texas, threatening eventually to infest all of the cotton-growing region. The circumstance that it conceals itself inside of the growing cotton-boll, being thus safe from attack while devouring the interior, makes it a very difficult bug to deal There is also a boll worm of the cotton, which causes a loss of \$12,000,000 per annum, while the cotton-leaf worm accomplishes additional mischief to the extent of \$8,000,000 or \$10,000,000. Thus it appears that three depredators are chargable with \$40,-000,000 worth of injury done yearly to cotton in the United States.

Orchard and small fruits suffer heavily from insect pests, both directly and because of the expensive methods of treatment necessary to prevent still greater losses. Taking into consideration the apple alone, one finds that its roots, trunk, foliage and fruit are assailed by several hundred bugs of as many different kinds, important among which are the limb borers, the leaf worms, the cankerworms, the tent caterpillars and the San Jose scale. ious to the fruit are the codling moth, the curculio and the apple maggot-objectionable creatures with which the consumer is rendered unpleasantly familiar by their borings and larvæ. The codling moth probably causes a greater money loss than any other depredator on fruit, destroying from one-fourth to one-half of the entire apple crop of the United States every year. As our average apple crop amounts to about 47,000,000 barrels, on which the average profit is one dollar a barrel, this expensive insect must cost us something like \$15,000,000 every twelvemonth.

Losses due to biting and parasitic insect enemies of cattle are large, the principal culprits being the ox warble and various biting

flies and ticks. Something like fifty per cent of the cattle received at the stockyards in Chicago from January to June are infested and more or less injured by the larvæ of the ox warble, which not only perforate the hides, thus lessening their value, but seriously reduce the quality of the beef. Probably the damage done by this one insect to cattle in the United States averages not far from \$20,000,000 per annum. It is well known that the shrinkage or check to fattening due to annoyance from biting flies and other pests that worry cattle runs up to a very expensive total every year, while buffalo gnats, gadflies, bot-flies and screw-worm flies levy a heavy tax. Reckoning the annual loss conservatively at ten per cent, the shrinkage in stock values due to bugs of one kind or another must be put down at \$175,000,000.

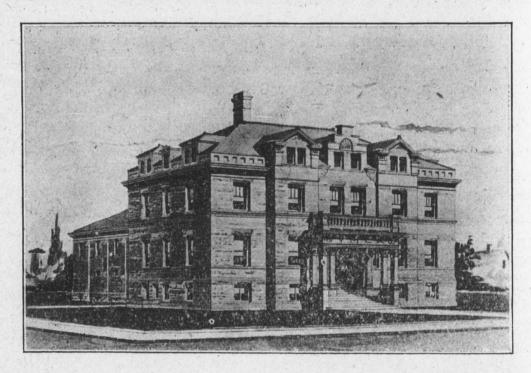
The Department of Agriculture estimates as follows the minimum annual damage done by our fourteen most destructive insects:

Grasshopper\$50,000,000	Gr
Chinch-bug	Ch
Hessian fly40,000,000	He
Corn-root worm20,000,000	Co
Corn-ear worm	Co
Cotton-boll weevil	Co
Cotton-boll worm	Co
Cotton-leaf worm	Co
Codling moth of apple	Co
Potato-bug8,000,000	Po
Grain weevil	Gr
Army worm	Ar
Cabbage worm	Ca
San Jose scale	Sa
Total\$298,000,000	

Mr. Marlatt, in conclusion, says that a considerable item to be included in the annual insect tax is the cost of protection against the bugs which attack the house, its food supplies, its woven fabrics, including clothing and carpets, and its human inmates. Screening against mosquitoes and flies and protection from roaches, clothes-moths and various small parasites, with and without wings, are a charge on every domestic establishment. If the sums expended for defense against such pests were tabulated for the whole country, the annual total would be at least \$50,000,000, and possibly would be double that amount. Thus, and in view of other considerations, it is believed that the yearly loss of over \$700,000,000 credited to injurious insects in the United States is much below the actual fact. It is a frightful tax upon the people, and the problem of lessening it is the most important that is presented to the economic entomologist.

A Y. M. C. A. Building.

Work will begin soon on the new \$30,000 Y. M. C. A. building for the students of the Kansas State Agricultural College. Over \$22,000 has been subscribed, by students, Faculty, and business men. The largest sum from any one person was \$250, except a \$1000 subscription from an Eastern man. This was offered through the International Committee of the Y. M. C. A. when the



fund had reached \$16,000, on condition that \$5,000 more was to be raised in three months.

A gymnasium worth \$10,000 will be built as an annex. The main edifice will have the parlors and audience room on one side of a commodious lobby in the center. On the other side will be the reading-rooms and offices.

In the basement will be the lockers, showers, boilers, kitchen, and dining-room. An association restaurant will probably be maintained.

The second and third floors will have nine rooms each, to be rented to students, members of the association chiefly.

The building will be strictly modern in its appointments.

The Department of Architecture has received a large cement cast, representing a lion resting on a laurel-branch, from the Horton Concrete Company, at Iola, Kan. The cast, a beautiful piece of modeling, will be given a place on the walls of the class room in architecture.

Farmers' Institutes.

The great demand of the farmers of Kansas in recent years for more institutes has put far more work upon the State Agricultural College than it is able to do with its limited appropriation for this purpose. Nebraska, for example, has an annual appropriation of six thousand dollars, while Kansas gets barely one-fourth that amount.

The demand for help from the College under its limited allowance has necessitated, on the part of the Regents, a somewhat different method of handling these institutes. They have employed a Secretary to have special charge of this and other field work, who will devote his whole time to this department.

At present, calls come for institutes from all parts of the State, and frequently the College is sending out nine or ten of the Faculty the same week, greatly interfering with the regular work of

the College and Station, and at great expense.

As soon as practicable, therefore, it will be the aim to arrange these institutes in chains of five or ten in certain parts of the State where the same subjects will be of interest, and one or two men will be sent for that series, making probably ten institutes at little greater railroad expense than to have made one at the most distant point. To do this it will be necessary for the institute officers to be a little less particular as to exact date, permitting the Field Secretary to fix the dates in harmony with other demands. It will also be necessary to send in requests earlier, suggesting the preferred date, at least as to month, and also the subjects to be treated, but not the speakers. All requests will be filed, and then immediate efforts will be made to arrange all in a series, thus saving time and expense.

The Regents also find it necessary to ask that the local committees arrange for all local expenses, hotel bills, etc., and rural committees will be asked to provide livery or other conveyances

to and from the railroad stations.

As heretofore, the College will print posters and programs, if desired, free of charge, but the local committees will be expected to see to the newspaper advertising. As a rule, too little of this has been done. The newspapers of Kansas are exceedingly patriotic and generous, and as an institute is a public affair for the advancement of the resources of the county, committees ought to feel free to avail themselves of all the newspaper advertising needed and let all the people know of the institute and its importance. It should be announced at least two weeks in advance, and program published. It is somewhat discouraging for two College

men to leave their important farm and college work, ride half way across the State, at a total expense of probably \$20 or \$30, and address an institute of twenty people, or possibly have not that many for the opening session.

The Institute Committee also desires to urge upon local officers two things: (1) Make good use of local talent—practical and successful farmers, stock raisers, horticulturists, housekeepers, and others; and (2) make special effort to interest the farmer boys and get them to attend the sessions.

Institute officers are reminded of the law that provides for help from the country. County commissioners may appropriate a sum not exceeding \$50 to a regularly organized county institute that will hold a session extending into two days. The length of an institute must depend upon the interest of the farmers of the community.

The College hopes to have the continued co-operation of institute officers in this work. Address, Secretary Farmers' Institutes, Kansas State Agricultural College, Manhattan, Kan.

The Attendance.

On Saturday, October 7, Secretary Clemons made a count of the assignments that were completed, classified, and entered on the books. The following schedule shows the attendance on that day:

Seniors	98
Juniors 1	41
Sanhamana 1	**
Sophomores 1	84
	44
reparatory 1	31
Special	13
Postgraduates	11
C Short Course	
D. S. Short Course	51
Total 11	73

In addition to these regular students there are several hospitants and apprentices present. This is the largest enrolment in the history of the College for the third week of the College year.

President Nichols returned from Chicago on Wednesday, where he had gone to make arrangements with Mr. W. B. Biddle, vice-president, and Mr. J. F. Holden, freight traffic manager of the Rock Island, for a corn and wheat special train over their road in Kansas. The train will carry a number of College professors who will talk on corn and wheat raising. The special train will stop about thirty minutes at each station. The schedule will be announced soon.

THE INDUSTRIALIST

Published weekly during the College year by the Printing Department of the

Kansas State Agricultural College Manhattan, Kansas.

PRES. E. R. NICHOLS	Editor-in-Chief
DROE I D WALTERS	Local Editor
PROF. J. T. WILLARD	Alumni Editor

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#### Local Notes.

K. S. A. C., 29; Ottawa, 0; at the Athletic Park, October 7.

President Nichols addressed a farmer's institute at Osawatomie, October 7.

Bishop Hamilton, of San Francisco, conducted the chapel exercises in the Auditorium last Tuesday morning.

The Department of Electrical Engineering has just installed a Gerrik vacuum pump for attaining high vacuums.

Henry Spuhler, junior in the architectural course, has prepared plans and specifications for a fine, ten-room residence in Wamego.

Dr. Clark M. Brink has been invited to deliver an address on "Education" at the annual Baptist State Convention, to be held at Parsons this month.

Asst. Theodore L. Scheffer, of this College, will give an address on "The Study of Nature" before the Riley County Educational Association, at Riley, October 14.

The seniors in mechanical engineering are designing the valve gear of a locomotive. When completed the model constructed from their design will be placed in the engineering laboratory.

Professor Henrietta Calvin went to Wakefield last week to address the annual farmers' institute. She reports a good attendance, an interesting program and a very attractive exhibition of woman's handwork.

Congressman Calderhead, accompanied by a number of Manhattan citizens, attended chapel exercises in the Auditorium last Saturday. The congressman made a short address to the students in which he drew their attention to the fact that they were preparing to take an active part in the grandest civilization the world has ever seen, and that their opportunities to live satisfactory lives were of an exceptional character. The address made a strong impression on the students and was well received.

Six pure-bred cattle sent from the College to the Kansas City Royal Stock Show won seven premiums and \$165 in cash prizes. Sunflower Lad, two-year-old grade Hereford steer, won first premium and sweepstakes, and was said by the judges to have been the best of his kind ever sent to the Kansas City show. The pure-bred yearling Shorthorn, Tim, also won a blue ribbon. Two others won third, one sixth, and one seventh. All of the six will be exhibited in competition at the Chicago stock show, the first week in December.

Prof. B. F. Eyer is experimenting with the new "Tantalum" lamp, a form of incandescent lamp, the filament being composed of the metal tantalum, in place of carbon. This lamp is being manufactured by the Siemans-Halske Company and commands a price of eighty cents in Germany. The chief claim made for it is its efficiency, which a test in the College laboratory shows to be at rated voltage 1.8 watts per candle-power. The ordinary carbon lamp has an approximate efficiency of 3.5 watts per candle-power. It will be seen that the new German lamp has almost twice the efficiency of the old carbon lamp. Professor Eyer went to Kansas City on Friday to exhibit the lamp and give the result of his tests before the Kansas Electric Light Association. The lamp may be seen in operation at the College physical laboratory.

Among the efforts of the College professors to make themselves useful during the summer vacation should be mentioned Professor McKeever's lectures at county teachers' institutes. During the months of June and July, that is, during the institute season, the Professor addressed eighteen different institutes, mostly in the northern and western part of the State. His lectures were well received and were given many complimentary notices by the press. The following from the Abilene Reflector is but one of the many on our "editorial hook:" "Prof. W. A. McKeever, of the State Agricultural College, gave a very helpful and interesting address to the institute attendants last evening. The court-room was well filled and close attention was given. The speaker showed the power of sympathy and love in ruling pupils and explained in an attractive way the elements that make a successful teacher. He advised firmness and occasional lickings when necessary, but insisted on a courageous, earnest attitude on the part of the teacher. Professor McKeever is one of Kansas' most useful citizens. His writings, his lectures and his work in the College are all of a nature to benefit and uplift all with whom he comes in contact, and Abilene was fortunate in having him here."

In No. 1 of this volume of the Industrialist we published an item, credited to a Manhattan paper, concerning the department of domestic science at Purdue University, Indiana. should be corrected so as to give Miss Myrtle Mather, '02, credit for organizing the university extension and farmers' institute work in domestic science, and Prof. Ivy Harner, '93, credit for organizing the domestic science department at the university. prospectus published this summer by the Purdue University says: "A department of study for women is now to be established at Purdue University under the direction of Miss Ivy Harner, a graduate of the school of domestic economy of the Kansas Agricultural College, a teacher and director of experience, and a traveler and student of this kind of education in Europe, whose personal and educational qualifications for this important work are vouched for by the authorities of the University. Associated with her in the work of instruction will be the regular university professors of literature, language, history, art, and science, aided by all of the resources of their respective departments.

course of instruction in domestic economy will be of college grade, comparable in scope and thoroughness with the scientific and engineering schools of the university, requiring high-school training for entrance, maintaining in its four-years curriculum a careful balance between cultural and scientific subjects and those pertaining to the technique of the household; and leading to the collegiate degree of Bachelor of Science."

Definite arrangements have been made for the following farmers' institutes: October 10, Wilsey, Professor Ten Eyck; October 12, Waverly, Professors Willard and Dickens; October 13, Higginsville, Professor Popenoe and Miss Minis; October 14, Hiawatha, Assistant Professors Shoesmith and Rose; October 14, Bucyrus, Professors Dickens and Calvin; October 18-20, Beloit, Professor Kinzer; October 18-20, Hope, Professor TenEyck and Assistant Wheeler; October 19-20, Indian Creek, Professors Dickens and Erf; October 20, Holton, Professors Walters and Erf; October 21, Axtell, President Nichols; October 25-28, Harper, Professor Kinzer.

#### Alumni and Former Students.

M. A. Reeve, of Emporia, fourth-year student in 1882, and acting superintendent of the work shops, 1882-'83, visited the College on the 7th instant in company with W. J. Griffing, '83. The changes noticed by Mr. Reeve are such as to make the institution scarcely recognizable.

Geo. L. Clothier, '92, who has been in the Bureau of Forestry for a number of years, has been elected to the chair of forestry and plant breeding in the Mississippi Agricultural and Mechanical College. Mr. Clothier's education and experience fit him well for

the duties of this position.

The Kansas Farmer is printing the address recently given by Gertrude Coburn, '91, at the Topeka State Fair, on "The Use of the Norwegian Cooking Box or Food Cozy." It is a most excellent presentation of the advantages of long heating of certain foods at a moderate temperature and of the simple means by which this may be accomplished.

Archie Moore, special student last year, Jens Nygard, '05, and Scott S. Fay, '05, are now doing chemical work in the analysis of sugar beets for the American Beet Sugar Company, Rocky Ford, Colo. They are working on the day shift, and Mr. Moore says: "We start to work at seven in the morning and quit at seven in the evening, but glory! we have a half-hour at noon for our lunch. Don't you think that is extravagance in the way of time when it is possible for us to eat in ten minutes? Our work keeps us on the jump all the time. We each have about one hundred samples of different sugar products each day. I have about one hundred sixty-three each day, not counting any specials which may be thrown in my way. It is obvious that speed and not accuracy is required, though of course there is a limit in the latter. Holy smoke! Wait until we get on the night shift!"

#### Regarding the Experiment Station Council.

The following resolution, with reference to the Experiment Station Council, was adopted by the Board of Regents at their September meeting:

Resolved, That in order to co-ordinate and strengthen the work of the Experiment Station of this College, the following regula-

tions be adopted:

(1) That the Experiment Station Council shall consist of a director, to be elected by the Board of Regents to serve during good behavior and efficiency, the President of this College, ex-officio, who shall be chairman, the heads of the following departments: agriculture, botany, horticulture, animal husbandry, dairying, chemistry, entomology, and veterinary science.

(2) It shall be the duty of the council to meet annually, and to decide as definitely as possible the lines of experimental work to be carried out the ensuing year. It is intended at this meeting that a full and free discussion of proposed measures be had, and that the work finally determined upon shall be by a majority vote.

- (a) It is recommended by the Board of Regents that one or two major lines of work representing typical interests of the State of Kansas, and in which all members of the staff, if possible, should co-operate, be selected. Other lines of work of an individual or restricted character may, of course, be outlined and prosecuted, but it is hoped that the work of this Station will have a special and definite direction along the lines of the State's most dominant interests.
- (3) The director shall be responsible for the carrying out of the work of the Station, and it shall be his duty to see that all records are properly kept, and that the data relating to experiments be preserved and co-ordinated as fully as possible. He shall be responsible for the expenditures of the Station, and publications and management of all business details, and shall have full charge of the correspondence and the issuance of bulletins. It shall be his duty to render annually to the Board of Regents on the first day of June a full statement of work done by the Experiment Station. Expenditures shall be made on requisition drawn by different members of the council and approved by the director, and all bills shall be approved before payment.

(4) Members of the council shall be individually responsible to the director as regards Station work, and shall be held to the performance of work agreed upon by the council in its annual or

special sessions.

(5) All the work of the Station, wherever conducted, whether at Manhattan, Hays, McPherson, or elsewhere, shall be under the immediate charge of the director, and the director shall be held responsible for the management of all work without regard to locality.

(6) Excepting for the year 1905, the director shall prepare and submit to the Board of Regents, at its April meeting, plans for the Station work, and estimates of expenditures for the following year, the said plans being the action of the council at a meeting to

be held in March of each year. After approval by the Board of such plans and expenditures, it shall be the duty of the director to see that such plans are duly carried out, and thereafter such work, wherever carried on, shall be under his general supervision or of such member of the council as he may assign to it.

(7) The regular meeting of the council shall be held monthly, and as much oftener as the interests of the Station may demand, and a meeting may be called at any time by the director or the

President of the College.

(8) That any lands now held by the State Agricultural College or the Experiment Station at Hays, and that are not needed for scientific experimentation, may be leased only on condition that the lessees thereof shall keep and report to the director a complete record of the sowing, irrigation, cultivation and yield of the crops grown on such lands, and that this clause be made a part of any lease.

#### Experiments in Hybridization.

The Botanical Department at the State Agricultural College, Manhattan, has carried on some interesting and valuable experiments in hybridization the past year. The work has included the scientific study of hybridization and of variation in plants.

To date, since 1899, 181 wheat hybrids have been originated by Professor Roberts and assistants. After elimination by selection, 34 of these were grown in the test plots at the College the

past season.

Crosses have also been made between distinct species—wheat and rye in 1903; emmer and wheat the past year. In the case of the latter, a remarkable feature of the progeny was their absolute uniformity—a feature not expected and usually denied with respect to hybrids between distinct species. An exhaustive study of the intimate structural and cell characters of the emmer-wheat hybrids is in progress.

A successful cross is believed to have been obtained this season The facts as to its real hyby pollinization of wheat with oats.

brid nature will be ascertained later.

Crosses between corn and a near relative—gama grass—are being studied. Also, from successful crosses between various types of field corn and sweet corn, made in 1903, seven ears were secured from four hybrids. The seeds thus obtained were planted this season and are doing well. They have been closepollinated, the object being to obtain clearer knowledge concerning the effects of continued close-pollination, or in-breeding.

The study of variation is being conducted partly with wheat The object is to discover how far natural variation in plants may give rise to permanent new types. The work in variation study is yet in its infancy, whereas the results from the experiments in hybridization are sufficiently advanced to begin to yield valuable information. Botanist Roberts will issue a bulletin

concerning his discoveries during the year.

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## Kansas State Agricultural College

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For Catalogue or other information, address

## E. R. Nichols, President

Manhattan, -- Kansas

Historical Society

#### THE X

## INDUSTRIALIST

Vol. 32

No. 5

ISSUED WEEKLY BY

Kansas State Agricultural College Manhattan



PUBLISHED BY
PRINTING DEPARTMENT
J. D. RICKMAN, Supt.

Entered at post-office, Manhattan, Kan., as second-class matter. Act of July 16, 1894.

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## THE INDUSTRIALIST.

Vol. 32.

MANHATTAN, KAN., OCT. 23, 1905.

No. 5

#### Interesting Records of Bygone Days.

ONE of the most important phases of governmental activity to-day, from an economic standpoint, is the work of the weather bureau, and none could be more fascinating.

The educational institutions of the country, including those of Kansas, early recognized the value of weather observations and entered upon the work. Unfortunately, however, their records have always been more or less incomplete, and this is especially true of the days "befo' de wah," when their importance was not fully appreciated.

Fort Leavenworth lays claim to the oldest weather station in Kansas, but the most complete set of records to be found in the State are those now in the possession of, and being kept by, the Department of Physics and Electrical Engineering at this College.

The earliest records date back to ante-bellum days, beginning February 1, 1858. Hon. Isaac T. Goodnow, State Superintendent of Public Instruction from 1862 to 1866, was the first observer (1858 to 1863).

The College was then a Methodist institution, known as Bluemont College. It was located about one mile west of the present site. Isaac T. Goodnow was its first President. A fire at the old institution during this time destroyed the records for August, 1860, and for part of September following.

Bluemont College was presented to the State in 1863, under the provisions of an act passed by Congress in 1862 and signed by President Lincoln. The State endowed and reorganized the institution as the Kansas State Agricultural College. Mr. Goodnow was prominent in the organization, and held the office of Regent from 1863 to 1867.

During his incombency as weather observer, some interesting facts are recorded. The record for January 30, 1859, reads: "A meteor in the east about 7 P. M. It consisted of two meteors, connected by a train of light. One meteor about as large as a star of the first magnitude, the other as large as one of the third magnitude. It did not move. Lasted about 5 minutes."

For May 15, 1859, the record reads: "A tornado commenced at  $7\frac{1}{2}$  P. M. and ended at  $8\frac{1}{2}$  P. M. One path came up from S. W., another from the W. They united and proceeded on toward E. in a zig-zag course. Width of path varied from 3 to 10 rods. It destroyed 5 buildings and injured 9 others. After crossing the Blue it uprooted and scattered trees, etc., all along its course. It was attended by both lightning and hail."

May 24, 1859: "The Big Blue and Kansas rivers have risen 12

feet."

December, 1859: "For some four weeks the Big Blue and Kansas rivers have been frozen over. Ice 8 inches thick. Four days since 2000 lbs. of buffalo and catfish were speared through holes in the ice. The ground is frozen deep, causing deep fissures a foot or so in depth."

From September, 1863, to September, 1865, Henry L. Denison was observer. From the date of his departure till May, 1866, no

record seems to have been kept.

Prof. B. F. Mudge, now deceased, became "professor of natural science and higher mathematics" in May, 1866. He assumed the duties of weather observer, which position he held until July, 1873.

In April, 1867, he records: "On the 24th, at 2:22 P. M., occurred an earthquake shaking the College so violently that the students rushed out instanter. The clocks were stopped, as were all the pendulum clocks in Manhattan. Many stone buildings in town badly cracked. Water in Kansas river was rolled in a wave from S. to N. bank. Wave about 2 feet in height. The shock lasted about 12 seconds."

Professor Mudge was succeeded as observer by Prof. Wm. K. Kedzie (1873 to 1878), who held the chair of chemistry and physics. His coming was at the same time as that of Pres. J. A. Anderson, who was a congressman following his presidency of K. S. A. C.

Professor Kedzie was followed as observer by Prof. G. H. Failyer (1878 to 1885), who was also professor of chemistry and physics. Professor Failyer is now in the bureau-of soils, United States Department of Agriculture.

The next observer was Prof. E. B. Cowgill (1885 to 1887), who was also professor of mechanics, physics, and engineering. Pro-

fessor Cowgill now edits the Kansas Farmer in Topeka.

Other observers have been: F. J. Rogers (1887 to 1889), now physicist at Leland Stanford; C. M. Breese (1889 to 1891, and 1894 to 1897), now clerk of Riley county, Kansas; E. R. Nichols, (1891 to 1894, and 1897 to 1801), now President of the Kansas State Agricultural College; Dr. C. P. Blachly (1901 and 1902). From Jan-

uary, 1903, to date the observations have been made by Prof. J. O. Hamilton, assistant professor of physics.

The record for April 5, 1895, C. M. Breese observer, reads: "Lightning struck President Fairchild's residence [on the campus] at 8:30 P. M. All wood parts of the building consumed by fire." This was a memorable occasion for the students. One of the literary societies, which was in session, came to the rescue. "Fire hose was attached to the hydrant near Mechanics Hall, only to be 100 feet too short, hence useless. The city fire company arrived after a long, hard run of a mile and a half, but too late to be of service."

April 15, 1895: "A peculiar cloud was observed at 3:35 P. M. by William Baxter and the observer independently. It was at first mistaken by each for smoke issuing from the College barn. It pursued a northerly course, assumed a funnel shape, and had a whirling motion. It was probably 30 to 50 feet in diameter where it touched the earth, five times that at the top, and about 200 feet high. A small whirling storm in Manhattan caught Maggie Correll, a second-year student, from the ground, bruising her considerably."

Professor Hamilton records in May, 1903: "The river reached  $27\frac{1}{2}$  feet, the deepest ever known. The flood reached Sixth street. About 800 persons were driven from town to the College. A wind storm on the 26th was in the nature of a tornado."

This was one of the most exciting times the College has ever witnessed. The refugees at the College were fed by the domestic science girls at the expense of the institution. Two through passenger trains, one Rock Island and one Union Pacific, were marooned here, and for a time communication with the outside world was entirely cut off, during which time the food supply became alarmingly low. Boating on Main street was quite the thing. The loss of property was enormous.

Since the time President Nichols was observer only such records have been kept as were required by the United States weather bureau. But the records are still the most complete in the State. They are consulted frequently by outsiders. Only recently data for the last twenty-five years was copied for the Union Pacific railroad. A government bureau representative spent two months here, several years ago, in copying weather records, etc.

The Kansas Experiment Station, which is located at the Kansas State Agricultural College, uses the data in working out agricultural problems. The records show, for example, that during

twenty-three years, to 1902, no frost was recorded earlier than September 13. In eight years out of this period killing frosts occurred in September. October 5 is the average date for killing frosts, September 25 of September frosts, and October 10 of October frosts. Also, the greatest rainfall for any one year (45.86 inches) fell during 1876, and the least (15.17 inches) during 1860. Records of highest and lowest temperatures, deepest snowfall, etc., can be found easily.

The weather bureau is not only the best equipped in the State, but is said by a government bureau expert to be one of the best College observatories in the country, not excepting those at the great universities. The apparatus includes one quadruple register for recording the sunshine, wind velocity, wind direction, and amount of rainfall; also standard barometers, a barograph, a thermograph, maximum and minimum thermometers, apparatus for determining relative humidity, etc. The wind velocity recording apparatus was invented and made by Pres. E. R. Nichols, while professor of physics and weather observer. The cost of the present equipment is about \$600, which is considerable in view of the fact that this is not a government station.

A unique feature of the work is that the outdoor apparatus is located about 200 yards west of the College, where it is free from the influence of unnatural conditions accompanying their usual location at other stations upon the roofs of buildings.

Weather reports were formerly compiled and sent out as bulletins, but the practice was discontinued several years ago owing to lack of funds. The present observer will resume that work shortly.

The students who attended the Royal Stock Show at Kansas City last week were: C. A. Gilkinson, D. H. Gripton, Harry Oman, C. Lambert, L. E. Hazen, A. Conner, W. B. Schroeder, W. J. Brown, Robert Gilbert, W. E. Watkins, H. R. Reed, J. N. Bealey, M. L. Walters, M. R. Shuler, H. J. Bottomly, E. E. Greenough, M. D. Snodgrass, J. M. Ryan, C. S. Jones, F. L. Williams. The delegation must have had a royally good time while at Kansas City. The commission firms dined them and took them to the theater in genuine Metropolitan style.

Professor Dickens is making preparations for an experiment with oiling road-beds. He will oil the road from the College gate to the north entrance of the city park some time this month. The Industrialist will give accounts of the work and its aspect when the work is completed.

#### Wed Bank Books, Not Men.

Under this headline the Kansas City *Star* reports an interesting address, given at Joliet, Ill., by one of our College graduates. The *Star* says:

"A little woman from Manhattan, Kan., took the platform at the convention of the State Federation of Women's Clubs this morning and painted a word picture of 'The Woman of To-day' that made four hundred feminine faces flush. She was Margaret M. Mather, of the Kansas State Agricultural College, Manhattan. When the little woman had retired she had projected upon the mind of every mother and every daughter in the audience an image of a woman with a heart shrunk by lack of wholesome nourishment and with soul soiled by the stain of tainted money. And this, she said, 'was an image of the woman of to-day.' In making her picture Miss Mather declared that femininity had been crucified upon a cross of gold. 'No longer,' said she, 'is a young woman willing to marry a man with a modest income. The love in a cottage ideal,' she declared, 'ruthlessly has been destroyed by the onrush toward social ambitions. Character, ability and intellectuality no longer weigh much in the social scale, and when one mother asks another if her daughter married well the usual answer is, affirmative or negative, according to the size of the check the happy bridegroom can sign. Our ideals have been powdered with gold dust. Woman's measure is taken in diamonds and jewels, instead of worth, womanliness and culture. The complexity of modern life has reduced the joy of living to a There would be fewer embezzlements and defalcations if the housewife understood the value of a dollar. know how much their husbands can afford to have them spend and most women on the topmost rung of the social ladder are living beyond their income."

Contractor Henry Bennet has commenced work on the new boiler-house addition. The excavations for the foundations are completed and the concrete work is under way. The addition will measure 51 by 39 feet and will be about 22 feet high. It is intended to complete the building before cold weather sets in. Work has also been started on the excavations for the new granary.

A regular examination for teacher's certificates at the close of the third quarter will be held in the county superintendent's office, Manhattan, Friday and Saturday, October 27 and 28, 1905, beginning at 7 o'clock.

#### THE INDUSTRIALIST

Published weekly during the College year by the Printing Department of the

#### Kansas State Agricultural College

Manhattan, Kansas,

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#### Local Notes.

Doctor Schoenleber reports the Texas fever prevalent in Cherokee county.

The blackboards of Professor McKeever's class room have received a coat of slating.

The Department of Architecture has ordered a new sciopticon lantern for illustrating Professor Walters' art lectures.

Assistant Scheffer and Chas. Popenoe, '05, spent ten days recently on the ranch of C. S. Marty, '96, in Barber county, collecting zoölogical specimens.

Over two hundred sixty delegates attended the Y. W. C. A. State convention, among them sixteen Indian girls from the Haskell Institute, at Lawrence.

The Library has recently purchased a new set of Poole's Index to Periodical Literature, complete in five volumes. This index covers the period from 1802 to 1901.

Miss Minis appears on the program of the State Library Association, which meets at Leavenworth, November 2 and 3, for a paper on "Bibliography and Reference Work."

The Veterinary Department is making important experiments in the comparative efficiency of the most important coal-tar preparations now used as dips. Results will be available shortly.

Two new catalogue cases have been added to the equipment of the library. The titles, authors, and shelf-list catalogues have been placed in these and the subject index given the entire space of the old ones.

Professor Henrietta W. Calvin has been appointed lecturer in dietetics at Christ Hospital, Topeka. She gives a demonstration lecture to the nurses every Monday afternoon and one of a theoretical nature in the evening.

Mr. Howard R. Watkins, recently elected assistant in chemistry, is an Iowa product. He graduated from Coe College in his native state in 1902, receiving the degree A. B. The two years following he was assistant chemist to the Iowa Experiment Station, where he did considerable work on the chemistry of soils and potable waters. In June, 1904, he was granted the master's degree by the Iowa State College. During the year 1904-1905 he was a graduate student and assistant in the chemical department of the Ohio State University, at Columbus. Mr. Watkins comes to us strongly recommended, and with his training and experience both as teacher and investigator will prove a valuable man.

#### Alumni and Former Students.

The firm of Avery and Sons, which includes H. W. Avery, '91, won several prizes on its Percheron horses at the American Royal Live Stock Show.

T. W. Morse, '95, with his father and brother, received some prizes on their pure-bred Shorthorn stock at the recent American Royal Live Stock Show.

Henrietta M. Hofer ['02] is soloist in a quartet in Trinity M. E. church, on Indiana Avenue, Chicago, and a member of the Schubert musical club for ladies.—Nationalist.

Among those attending the State Y. W. C. A. Convention were Josephine Edwards, '05, with the Emporia delegation, and Retta Womer, '04, and Bertha Cowles, '05, with those from Lawrence.

Fred W. Wilson, '05, has been elected animal husbandman in the Arizona Experiment Station. He will be located at Phœnix and expects to go there soon. All will wish him success in his new field of work.

F. A. Hutto, '85, has resigned his position as professor of history and political economy in the Oklahoma Agricultural and Mechanical College and plans to locate on the Pacific coast and engage in the practice of law.

Leslie A. Fitz, '02, and Mrs. Fitz visited the College and friends in Manhattan, on the 12th and 13th, on the way from McPherson to Washington, D. C. They spent some days, also, with Mr. Fitz's parents at Vinland. They are now located at 1633 Howard Avenue, N. W. Washington, D. C.

W. L. English, sophomore in 1901, graduated from the Oklahoma Agricultural and Mechanical College last June and is now assistant in animal husbandry in that institution. He and F. C. Burtis, '91, professor of agriculture in the same institution, attended the American Royal Live Stock Show in Kansas City.

Josephine Edwards, '05, kindly remembered us with the news that her brother, L. S. Edwards, '03, was married, October 5, to Miss Cora B. Glasscock, of Oswego, Kan. Miss Glasscock has been a teacher in the city schools there for several years. Mr. Edwards is still working on the Deming ranch, and the place he first filled while there is now occupied by Harry Umberger, '05.—Students' Herald.

Geo. F. Thompson, M.S. '02, editor of the Bureau of Animal Industry, has returned from his European trip for investigation of the goat industry in England, France, Italy, and the Maltese Islands. The Department has, as a result of his study, imported a herd of sixty-eight goats from the Island of Malta for the purpose of experimenting with goats' milk as food for children. Because of its composition, and the almost complete freedom of goats from tuberculosis, their milk seems specially adapted for the use of children and invalids.

#### Wheat and Corn Special Train.

THROUGH the courtesy of the Rock Island officials the work of the Kansas State Agricultural College and Experiment Station in wheat and corn improvement is to be brought before all the people along their lines. This train is to cover the entire lines of the Rock Island System in Kansas, stopping thirty minutes at each station. There will be two coaches arranged for audience rooms, in one of which will be given a talk on wheat raising and in the other, corn. We request everybody interested in raising more and better wheat and corn to be prompt at the hour named in the following schedules. No farmer can afford to miss this opportunity. It will not take long to drive to your nearest railroad station, listen to a thirty-minute lecture and return home. Remember the special train will run regardless of weather. The evening sessions will begin at 8 o'clock. Newspapers are requested to copy part of schedule that applies to their locality.

	Monday,	November 6.	Central to	ime.
6 11 11			ARRIVE.	LEAVE.
Caldwell			9:00 A.M.	9:30 A. M.
Corbin			9:45	10:15
Perth			10:25	10:55
Wellington			11:15	11:45
Riverdale			12:00 м.	12:30 P. M.
Zyba			12:40 р. м.	1:10
Peck			1:15	1:45
Haysville			2:00	2:30
wichita			2:50	3:20
Kechi			3:35	4:05
Furley			4:15	4:45
wnitewater			5:00	5:30
Elbing			5:40	6:10
Peabody			6:25	
Evening session at Peab				
	Tuesday,	November 7.		
Peabody				
Peabody		• • • • • • • • • • • • • • •		8:45 A. M.
Aulne	• • • • • • • • • •		9:00 A. M.	9:30
Marion			9:45	10:15
Antelope			10:25	10:55
Lost Springs			11:00	11:30
Lost Springs			11:40	12:10 P. M.
Herington			12:25 Р. м.	1:00
Woodbine			1:20	-1:50
Pearl			2:00	2:30
Enterprise			2:45	3:15
Abeline			3:25	3:55
Solomon			4:10	4:40
New Cambria			4:55	5:25
Salina			5:40	
Evening session at Salina	a.			

Wednesday, November 8.		
, cancer,	ARRIVE.	LEAVE.
Herington		8:40 A. M.
Ramona	9:00 A. M.	9:30
Tampa	9:45	10:15
Durham	10:25	10:55
Waldeck	11:03	11:35
Canton	11:50	12:20 P. M. 1:05
Galva	12:35 P. M. 1:20	1:50
McPherson	2:05	2:35
Groveland	2:45	3:15
Inman	3:25	3:55
Medora Hutchinson	4:15	4:45
Partridge	5:05	5:35
Arlington	5:50	6:20
Turon	6:35	
Evening session at Turon.		
Thursday, November 9.	0.00	0.20 4 35
Liberal	9:00 A.M.	9:30 A. M. 10:15
Hayne	9:45	11:00
Arkalon	10:30 11:15	11:45
Kismet	12:00 м.	12:30 P. M.
Plains	12:45 P. M.	1:15
Jasper	1:25	1:55
Meade	2:15	2:45
Mineola	3:10	3:40
Bloom	3:55	4:25
Kingsdown	4:40	5:10
Bucklin	5:25	5:55
Dodge City	6:55	••••
Evening Session at Dodge City.		
Friday, November 10.		
Dodge City		8:40 A. M.
Wilroads	9:00 A. M.	9:30
Ford	9:50	10:20 $11:20$
Mullinsville	10:50	12:10 P. M.
Greensburg	11:40 12:20 P. M.	12:50
Brenham	1:05	1:35
Haviland	1:45	2:15
WellsfordCullison	2:30	3:00
Pratt	3:15	3:45
Natrona	4:00	4:30
Preston	4:50	5:20
Saturday, November 11.		8:40 A. M.
Herington	9:00 A. M.	9:30
Latimer	9:45	10:15
Dwight	10:30	11:00
Alta Vista	11:15	11:45
Volland	12:00 M.	12:30 P. M.
Alma	12:45 P. M.	1:15 2:00
Paxico	1:30 2:10	2:40
Vera	0 00	3:20
Maple Hill	0.00	4:00
Willard Valencia	1 10	4:40
Bishop	4:50	5:20
Topeka	5:35	

Monday, Nou	ember	13.
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Monday, November 13.		
	ARRIVE.	LEAVE.
Belleville		8:40 A: M.
Cuba	9:00 A. M.	9:30
Agenda	9:40	10:10
Clyde	10:30	11:00
Clifton	11:15	11:45
Morganville	12:00 м.	12:30 P. M.
	12:50 P. M.	1:20 P. M.
Clay Center		
Broughton	1:35	2:05
Bala	2:15	2:45
Riley	3:00	3:30
Keats	3:45	4:15
Zeandale	4:45	5:15
Wahaunsee	5:25	5:55
McFarland	6:15	
Evening session at McFarland.		
Tuesday, November 14.		
Topeka		8:40 A. M.
Elmont	9:00 A. M.	9:30
Hoyt	9:45	10:15
Mayetta	10:30	11:00
Holton	11:15	11:45
Stright Creek	12:00 м.	12:30 P. M.
Whiting	12:40 P. M.	1:10
Pierce Junction		2:05
Dungall	1:35	
Purcell	2:15	2:45
Denton	2:55	3:25
Bendena	3:35	4:05
Troy	4:15	4:45
Wathena	5:00	5:30
D TT		
Returning to Horton, reaching there not later to	han 7:30 P.M.	for evening
Returning to Horton, reaching there not later to meeting.		for evening
Wednesday, November 15		for evening
Returning to Horton, reaching there not later to meeting.  Wednesday, November 15  Horton		
Wednesday, November 15 Horton Germantown		8:40 A. M. 9:30
Wednesday, November 15 Horton Germantown	9:00	8:40 A. M. 9:30
Wednesday, November 15 Horton Germantown Powhattan	9:00 9:40	8:40 A. M. 9:30 10:10
Wednesday, November 15 Horton. Germantown Powhattan Fairview.	9:00 9:40 10:30	8:40 A. M. 9:30 10:10 11:00
Wednesday, November 15 Horton. Germantown Powhattan Fairview. Sabetha.	9:00 9:40 10:30 11:15	8:40 A. M. 9:30 10:10 11:00 11:45
Wednesday, November 15  Horton. Germantown Powhattan Fairview. Sabetha. Berwick.	9:00 9:40 10:30 11:15 11:55	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M.
Wednesday, November 15  Horton. Germantown Powhattan Fairview. Sabetha. Berwick. Berne.	9:00 9:40 10:30 11:15 11:55 12:45 P. M.	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15
Mednesday, November 15  Horton. Germantown Powhattan Fairview Sabetha Berwick Berne. Mahaska.	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30
Mednesday, November 15  Horton. Germantown Powhattan Fairview. Sabetha. Berwick. Berne. Mahaska. Narka	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00 4:40	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30 5:10
Mednesday, November 15  Horton. Germantown Powhattan Fairview. Sabetha. Berwick. Berne. Mahaska. Narka Munden.	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00 4:40 5:25	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30 5:10 5:55
Mednesday, November 15  Horton. Germantown Powhattan Fairview Sabetha Berwick Berne. Mahaska Narka Munden Belleville	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00 4:40	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30 5:10
Mednesday, November 15  Horton. Germantown Powhattan Fairview. Sabetha. Berwick. Berne. Mahaska. Narka Munden.	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00 4:40 5:25	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30 5:10 5:55
Wednesday, November 15  Horton. Germantown Powhattan Fairview. Sabetha. Berwick. Berne. Mahaska. Narka Munden. Belleville Evening session at Belleville.  Thursday, November 16.	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00 4:40 5:25	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30 5:10 5:55
Wednesday, November 15  Horton. Germantown Powhattan Fairview. Sabetha. Berwick. Berne. Mahaska. Narka Munden. Belleville Evening session at Belleville.  Thursday, November 16.	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00 4:40 5:25	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30 5:10 5:55
Mednesday, November 15  Horton. Germantown Powhattan Fairview. Sabetha. Berwick. Berne. Mahaska. Narka Munden. Belleville Evening session at Belleville.  Thursday, November 16.	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00 4:40 5:25 6:10	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30 5:10 5:55 
Mednesday, November 15  Horton. Germantown Powhattan Fairview. Sabetha. Berwick. Berne. Mahaska. Narka Munden. Belleville Evening session at Belleville.  Thursday, November 16.  Belleville Rydal.	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00 4:40 5:25 6:10	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30 5:10 5:55 
Mednesday, November 15  Horton. Germantown Powhattan Fairview. Sabetha. Berwick. Berne. Mahaska. Narka Munden. Belleville Evening session at Belleville.  Thursday, November 16.  Belleville Rydal. Scandia.	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00 4:40 5:25 6:10	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30 5:10 5:55  8:45 A. M. 9:30 10:10
Mednesday, November 15  Horton. Germantown Powhattan Fairview. Sabetha. Berwick. Berne. Mahaska. Narka Munden. Belleville Evening session at Belleville.  Thursday, November 16.  Belleville Rydal. Scandia. Courtland	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00 4:40 5:25 6:10	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30 5:10 5:55  8:45 A. M. 9:30 10:10 10:55
Mednesday, November 15  Horton. Germantown Powhattan Fairview. Sabetha. Berwick. Berne. Mahaska. Narka Munden. Belleville Evening session at Belleville.  Thursday, November 16.  Belleville Rydal. Scandia. Courtland Formosa.	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00 4:40 5:25 6:10 9:00 A. M. 9:40 10:25 11:10	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30 5:10 5:55  8:45 A. M. 9:30 10:10 10:55 11:40
Mednesday, November 15  Horton. Germantown Powhattan Fairview. Sabetha. Berwick. Berne. Mahaska. Narka Munden. Belleville Evening session at Belleville.  Thursday, November 16.  Belleville. Rydal. Scandia. Courtland Formosa. Montrose	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00 4:40 5:25 6:10 9:00 A. M. 9:40 10:25 11:10 11:50	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30 5:10 5:55  8:45 A. M. 9:30 10:10 10:55 11:40 12:20 P. M.
Mednesday, November 15  Horton. Germantown Powhattan Fairview. Sabetha. Berwick. Berne. Mahaska. Narka Munden. Belleville Evening session at Belleville.  Thursday, November 16.  Belleville Rydal. Scandia. Courtland Formosa. Montrose Mankato.	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00 4:40 5:25 6:10 9:00 A. M. 9:40 10:25 11:10 11:50 12:35 P. M.	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30 5:10 5:55  8:45 A. M. 9:30 10:10 10:55 11:40 12:20 P. M. 1:05
Mednesday, November 15  Horton. Germantown Powhattan Fairview. Sabetha. Berwick. Berne. Mahaska. Narka Munden. Belleville Evening session at Belleville.  Thursday, November 16.  Belleville. Rydal. Scandia. Courtland Formosa. Montrose Mankato. Otego.	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00 4:40 5:25 6:10 9:00 A. M. 9:40 10:25 11:10 11:50 12:35 P. M. 1:25	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30 5:10 5:55  8:45 A. M. 9:30 10:10 10:55 11:40 12:20 P. M. 1:05 1:55
Mednesday, November 15  Horton. Germantown Powhattan Fairview. Sabetha. Berwick. Berne. Mahaska. Narka Munden. Belleville Evening session at Belleville.  Thursday, November 16.  Belleville Rydal. Scandia. Courtland Formosa. Montrose Mankato. Otego. Esbon.	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00 4:40 5:25 6:10 9:00 A. M. 9:40 10:25 11:10 11:50 12:35 P. M. 1:25 2:05	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30 5:10 5:55  8:45 A. M. 9:30 10:10 10:55 11:40 12:20 P. M. 1:05 1:55 2:35
Mednesday, November 15  Horton. Germantown Powhattan Fairview. Sabetha. Berwick. Berne. Mahaska. Narka Munden. Belleville Evening session at Belleville.  Thursday, November 16.  Belleville. Rydal. Scandia. Courtland Formosa. Montrose Mankato. Otego. Esbon. Lebanon.	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00 4:40 5:25 6:10 9:00 A. M. 9:40 10:25 11:10 11:50 12:35 P. M. 1:25 2:05 2:50	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30 5:10 5:55  8:45 A. M. 9:30 10:10 10:55 11:40 12:20 P. M. 1:05 1:55 2:35 3:20
Mednesday, November 15 Horton. Germantown Powhattan Fairview. Sabetha. Berwick. Berne. Mahaska. Narka Munden. Belleville Evening session at Belleville.  Thursday, November 16.  Belleville. Rydal. Scandia. Courtland Formosa. Montrose Mankato. Otego. Esbon. Lebanon Bellaire.	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00 4:40 5:25 6:10 9:00 A. M. 9:40 10:25 11:10 11:50 12:35 P. M. 1:25 2:05 2:50 3:35	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30 5:10 5:55  8:45 A. M. 9:30 10:10 10:55 11:40 12:20 P. M. 1:05 1:55 2:35 3:20 4:05
Mednesday, November 15 Horton. Germantown Powhattan Fairview Sabetha Berwick. Berne. Mahaska. Narka Munden Belleville Evening session at Belleville.  Thursday, November 16.  Belleville Rydal. Scandia Courtland Formosa Montrose Mankato Otego Esbon. Lebanon Bellaire. Smith Center.	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00 4:40 5:25 6:10 9:00 A. M. 9:40 10:25 11:10 11:50 12:35 P. M. 1:25 2:05 2:50 3:35 4:20	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30 5:10 5:55  8:45 A. M. 9:30 10:10 10:55 11:40 12:20 P. M. 1:05 1:55 2:35 3:20 4:05 4:50
Mednesday, November 15 Horton. Germantown Powhattan Fairview Sabetha Berwick Berne. Mahaska Narka Munden Belleville Evening session at Belleville.  Thursday, November 16.  Belleville Rydal. Scandia Courtland Formosa Montrose Mankato Otego Esbon. Lebanon Bellaire. Smith Center. Athol	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00 4:40 5:25 6:10 9:00 A. M. 9:40 10:25 11:10 11:50 12:35 P. M. 1:25 2:05 2:50 3:35 4:20 5:05	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30 5:10 5:55  8:45 A. M. 9:30 10:10 10:55 11:40 12:20 P. M. 1:05 1:55 2:35 3:20 4:05
Horton. Germantown Powhattan Fairview Sabetha Berwick Berne. Mahaska. Narka Munden Belleville Evening session at Belleville.  Thursday, November 16.  Belleville Rydal. Scandia Courtland Formosa. Montrose Mankato Otego. Esbon. Lebanon Bellaire. Smith Center. Athol Phillipsburg	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00 4:40 5:25 6:10 9:00 A. M. 9:40 10:25 11:10 11:50 12:35 P. M. 1:25 2:05 2:50 3:35 4:20	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30 5:10 5:55  8:45 A. M. 9:30 10:10 10:55 11:40 12:20 P. M. 1:05 1:55 2:35 3:20 4:05 4:50
Mednesday, November 15 Horton. Germantown Powhattan Fairview Sabetha Berwick Berne. Mahaska Narka Munden Belleville Evening session at Belleville.  Thursday, November 16.  Belleville Rydal. Scandia Courtland Formosa Montrose Mankato Otego Esbon. Lebanon Bellaire. Smith Center. Athol	9:00 9:40 10:30 11:15 11:55 12:45 P. M. 4:00 4:40 5:25 6:10 9:00 A. M. 9:40 10:25 11:10 11:50 12:35 P. M. 1:25 2:05 2:50 3:35 4:20 5:05	8:40 A. M. 9:30 10:10 11:00 11:45 12:25 P. M. 1:15 4:30 5:10 5:55  8:45 A. M. 9:30 10:10 10:55 11:40 12:20 P. M. 1:05 1:55 2:35 3:20 4:05 4:50 5:35

Friday, Nove	ember 17. Mountain	time.
Augustina the second of the second	ARRIVE.	LEAVE.
Goodland	8:30 A. M.	9:00 A. M.
Edson	9:15	9:45
Edson	10:05	10:35
Brewster		11:25
Levant		12:15 P. M.
Colby	40.00	1.00
Gem	1 00	1:50
Rexford		2:40
Selden		3:30
Dresden		4:20
Jennings	3:50	
Clayton	4:50	5:05
Delivale	0:20	5:55
Norton	6:15	
Evening session at Norton.		
Saturday, No	vember 18.	
Norton		8:40 A. M.
Norton	0.00	9:30
Calvert	0.40	10:10
Almena	10.90	11:00
Prairie View	44.00	11:50
Stuttgart		
	Central	
Gretna	1:30 Р. М.	2:00 P. M.
Agra	4.10	2:45
Kensington	3:00	3:30
Trombing vom		

R. H. Shaw, assistant chemist of the Experiment Station, is making a study of the chemical composition of the egg. He has analyzed the eggs of twenty-four hens of four different breeds and in this work has investigated about six hundred eggs as to their contents of protein, fat, ash, moisture, etc. The tabulated results will be published in pamphlet form sometime during the winter. Miss Gertrude Hole, of the senior class in the general science course, has assisted in the laboratory work.

We spoke in the last Industrialist of the right royal treatment accorded our delegation of students at the great live-stock show at Professor Kinzer, of the Animal Husbandry Depart-Kansas City. ment, informs us now that the College herd exhibited at that show fared equally well, winning many blue ribbons and \$165 in money. Awards were made as follows: Graded Hereford, two-year-old steer, Sunflower Lad, first prize and sweepstakes; Yearling Shorthorn, Tim, first prize; Shorthorn calf, Lord Hannah, third prize; Yearling grade Angus, Kansas Laddie, third prize; aged shorthorn bull, Ravenswood Admiration No. 168,157, seventh prize; shorthorn heifer, College Mary, sixth prize. This is the first showing attempted by the College and has proved a big success. The cattle awarded prizes at Kansas City will be taken to the Chi-George Portis is herdscago show the first week in December. man and is an expert. He has only been in this country two years, coming from Scotland. L. M. Walter, a student, assisted at the Kansas City exhibit.

The ampelopsis on the walls of our College buildings is changing its glossy green to a beautiful and variegated bronze red.

The Agriculture Department is taking samples of soil from several fields to find the condition in which the soil is left by various crops. It is found that Kafir-corn and sorghum leave the land dryer than do corn aud small grains.

Manhattan will soon have a new court-house. The contract for the building was given to Senator Betts, of Topeka, on October 5. The building will be located directly east of the new Carnegie Library and is to cost about \$50,000 when completed.

In tests of green manures the Agriculture Department has found cow-peas excellent to sow both in corn and wheat stubble. The crop also makes good pasture, and is a good winter covering. Since cow-peas take their nitrogen largely from the air, by means of the bacteria which grow on their roots, the soil is actually enriched by the growing of this crop. It is a hot-weather grower, quite hardy, and generally superior to all other green manure crops.

Superintendent Rickman, of the Printing Department, ordered six hundred reams (a car-load) of printing paper this week. This may seem a large order to our readers, yet it is only a part of a general order for printing material of various kinds. The department consumes from fifty to sixty reams of book paper per month the year round. Some months the presses eat up fully seventy-five reams, together with large amounts of letter paper, blank paper, colored cover stock, etc. The College print-shop is a busy corner.

Doctor Schoenleber reports that in talks with some of Kansas' most influential stock breeders at the Royal Stock Show, they were of the opinion that the quality of many veterinarians over the State is not up to the standard of present-day requirements; that the demand is not for more but for better men in this line; and that they are looking forward to having some good men from our new course in veterinary science. The field is large and lucrative, competition not great, and the opportunities exceptional. The doctor anticipates a large enrolment in this course next year.

The Agriculture Department has sown 40 varieties of wheat, 4 of barley, 3 of emmer, and 2 of einkorn. The fall plowing is finished and corn-husking is well started. Some 200 bushels of corn from seven pure-bred types have been selected from the field for seed. The department will have for sale from 400 to 500 bushels of seed-corn of the following varieties: Reid's Yellow Dent, Boone County White, Silver Mine, Kansas Sunflower, McAuley's White Dent, Hildreth, and Legal Tender. Some 200 bushels of seed-wheat and 150 bushels of winter barley have just been sold for fall seeding. Sixty-Day and Kherson, new early varieties of oats, have been found excellent producers, the seed of which is now for sale.

Swift & Co., of Kansas City, have donated several kinds of commercial fertilizers to be used by the Agriculture Department in comparative tests with barnyard manure for fertilizing wheat land. The fertilizer is applied by means of a combination drill, which sows the wheat and distributes the fertilizer at the same time.

The new "clinic" of the Veterinary Department is finished and painted. A number of animals are under treatment, and surgical operations are being performed nearly every day. But we may as well add that the building is inadequate for its purpose—simply another cheap makeshift as we have had to commit so often during the past third of a century. We hope that some day the live-stock interests of the great alfalfa and corn State will assist the College authorities in asking the legislature for more suitable quarters. The Veterinary Department should have a better home; it should have a hundred thousand dollar building, with lecture rooms, collections, hospitals, etc.—a building adequate for the work and in keeping with the large efforts which it is expected to make. The five hundred dollar shanty just finished should not be allowed to stand long.

Prof. O. Erf has returned from the Utah State Fair, where he has been judging dairy cattle, butter, and cheese. He reports great interest in the dairy business in that community. There were fifty-six entries for dairy cattle, as compared with eighteen of the beef breeds. A very nice display of butter, cheese and evaporated cream was also made at the fair. The creamerymen of Utah need to be especially complimented for the high-class products which they make. The annual convention of the State Dairymen's Association was held at Richmond, October 5, 6, and The meeting was one of the most successful that was ever held in Utah, probably due to the location, being where the dairy interests were mostly centered. Richmond is located in the Cache valley, which is one of the richest valleys in the state, and joins the Great Salt Lake Basin. Its principal farming interests are dairying and sugar-beet growing. Practically all of the farming has to be done by irrigation, and in small tracks. It is unquestionably the greatest dairying country in the West. It has the reputation of having some of the most modern and bestequipped creameries and cheese factories west of the Mississippi This valley is about fifty miles long and ten miles wide. Within it there are twenty-four creameries, eleven cheese factories, and two milk condenseries. It is estimated that over 250,000 pounds of milk are produced every day. The climate and conditions are particularly adapted to dairying. Lucerne, commonly known as alfalfa in the eastern states, is the principal forage crop. This, with the enormous quantities of barley and oats which they feed and which can be raised so cheaply, puts the farmers in position to produce milk very cheaply, compared with the price which they receive for the same. The dairymen of the East need to wake up and study dairy conditions more, or our western people will be far in advance in this line of work.

# Kansas State Agricultural College

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## Seven Four-Year Courses of Study

Each leading to B.S. degree, as follows:

Agriculture, Domestic Science, General Science, Mechanical Engineering, Electrical Engineering, Architecture, Veterinary Science



#### Three Short Courses

Open to students of mature age who cannot, for lack of time or money, take one of the four-year courses.

Domestic Science, two terms of 12 weeks each Dairying, one winter term of 12 weeks
Agriculture, two winter terms of 12 weeks each



¶ A Preparatory Department for students over eighteen in which all the common-school branches are taught each term. Nearly all subjects of the first two years are taught each term, so that it is possible for one to complete the first two years' work by attendance during winter terms only.

For Catalogue or other information, address

E. R. Nichols, President Manhattan, -- Kansas mi. no. writ. fr.

Historical Society

# INDUSTRIALIST

Vol. 32

ISSUED WEEKLY BY

No. 6

Kansas State Agricultural College Manhattan

3

PUBLISHED BY
PRINTING DEPARTMENT
J. D. RICKMAN, Supt.

Entered at post-office, Manhattan, Kan., as second-class matter. Act of July 16, 1894.

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—— Superintendent of Domestic Art

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## THE INDUSTRIALIST.

VOL. 32.

MANHATTAN, KAN., OCT. 30, 1905.

No. 6

#### Steer-Feeding Experiment, VII. 1903-1904.

(Bulletin No. 130, issued by Dairy and Animal Husbandry Department.)

The feeding of cattle is becoming one of the leading industries In view of this fact, it would seem proper that steerfeeding experiments should be one of the leading subjects of investigation at the Experiment Station. Already a number of experiments have been conducted, but new phases of the subject are constantly coming up and new questions are arising, the solutions and answers to which are of great importance to the practical feeder. The relatively low price of cattle and high price of feeding stuffs renders it especially important that the most economical methods possible be employed in order to reap a profit from the business. Owing to the fact that quite extensive changes and improvements were being made in the feeding lots of the Experiment Station, it was impossible the past winter to conduct any very extensive experiments. One car-load of steers, however, was divided into two lots and fed through a feeding period of one hundred fortyfour days, the details and results being given in this bulletin.

#### OBJECT AND PLAN OF EXPERIMENT.

The use of alfalfa as the sole roughage in full-feeding cattle is becoming quite general and seems to give the best of results. Some feeders, however, are of the opinion that where too much alfalfa of high quality is supplied to steers, they will not consume enough grain to produce satisfactory results. It has been observed in the progress of previous feeding experiments at this Station that cattle receiving nothing but alfalfa as a roughage always seem to have a taste for coarse roughage of various kinds.

It was decided to make a comparative test of alfalfa alone, with alfalfa and several other kinds of cheaper roughage supplied, so the cattle could select and eat at will whatever they desired. It was thought that where a variety of roughage was supplied in this way the steers could choose at will, and, in a measure, balance their own rations. The relative cost of the two methods of feeding also entered into the question. If as good gains could be produced by the use of a variety of roughages, in which alfalfa hay was used as

the chief, and cheaper fodders used with it, the cost of feeding would be reduced and more of the rough feed of the farm could be utilized.

#### MANNER OF FEEDING.

In order to make the conditions as nearly like those on the average farm where the cattle are fed, the steers were placed in lots with open sheds only for protection. The hay was fed in large, movable racks, into which a ton or more could be placed at a time. A manger extended along each side, and the cattle had free access to the roughage. The grain was fed separately in feed troughs. Lot No. 1, which received the variety of roughage, had alfalfa hay and prairie hay before them all the time. During part of the experiment they had also a small quantity of corn ensilage furnished them each day. The grain was the same for both lots, being corn-and-cob meal, and, toward the end of the experiment, cornmeal and cottonseed-meal.

#### STEERS USED.

The steers used in this experiment were purchased in Kansas City in the open market. They were high-grade Angus cattle, fairly uniform in quality. The average weight at the time of purchase was 918 pounds, and the average price per hundred weight was \$3.49.

#### GETTING THE STEERS ON FEED.

The experiment was started January 1, 1904. The steers were all placed in one lot and fed corn-stover and alfalfa hay, with a small amount of fodder corn from thick planting. They were fed in this way through the greater part of December. latter part of the month a small feed of ear corn was given in the troughs. In this way they were very slowly gotten on feed; and by the first of January all were eating well. On this date the steers were divided into two lots of ten each. The lots were divided as equally as possible, taking into consideration the type, quality and size of the different animals. The weights were taken about 1:30 P.M., and, as there was no intention of doing any experimental work with individual steers, the total weight of the lot alone was taken and this one weight considered as the weight of the lot at the beginning of the experiment. In the case of getting the weights of individual steers, the daily fluctuations are such that it is necessary to get the average of several days' weight in order to have a correct weight of the steers. In getting the weight of a lot, the daily fluctuations of individual steers will tend to balance each other.

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#### WEIGHTS AND GAINS.

In Table I is shown the weights and gains of the two lots by months. The gain for the first month is very large. It is probably due in part to the filling-up process which takes place when cattle are first put on feed. These steers, however, had been re-

TABLE I.—Weights and Gains by Months.

Alfalfa hay	Lot I.	r roughage.	Alfa	Lot II. lfa hay alo	ne.
Weight, pounds.	Gain, pounds.	Average daily gain per steer, pounds.	Weight, pounds.	Gain, pounds.	Average daily gain per steer, pounds.
9615 10,730 11,390 12,100 12,695 12,945	1115 660 710 595 250	3.59 2.27 2.29 1.92 1.25	9555 10,925 11,740 12,600 13,380 13,615	1370 815 860 780 235	4.41 2.81 2.77 2.51 1.17
	Weight, pounds.  9615 10,730 11,390 12,100 12,695	Weight, pounds.  9615 10,730 1115 11,390 660 12,100 710 12,695 595	Weight, pounds.         Gain, pounds.         Average daily gain per steer, pounds.           9615 10,730 1115 13,390 660 2.27 12,100 710 2.29 12,695 595 1.92	Weight, pounds.         Gain, pounds.         Average daily gain per steer, pounds.         Weight, pounds.           9615 10,730 1115 11,730 660 2.27 11,740 12,100 710 2.29 12,600 12,695 595 1.92 13,380         2.27 11,740 13,380	Weight, pounds.       Gain, pounds.       Average daily gain per steer, pounds.       Weight, pounds.       Gain, pounds.       Gain, pounds.       Gain, pounds.       Gain, pounds.       Gain, pounds.         9615       10,730       1115       3.59       10,925       1370         11,390       660       2.27       11,740       815         12,100       710       2.29       12,600       860         12,695       595       1,92       13,380       780

ceiving grain for a month, and on the day the experiment started received 118 pounds of ear corn per lot, or 11.8 pounds per head. There was a steady decrease in the average daily gains as the feeding period progressed, and it will be noticed that for the last twenty-two days the two lots gained at the rate of only 1.19 pounds daily. This phase of the fattening process in cattle had been pointed out by a number of investigators. The gains steadily decreased and the amount of grain consumed to produce a given gain steadily increased. It follows that the quicker cattle can be placed in condition for market after beginning to feed, the more economically beef can be produced. This is due to the fact that the body increase becomes proportionately greater than the di-For illustration, an 800-pound gestive capacity of the animal. steer has, as a rule, the same digestive capacity as he will after he has gained a weight of 1200 pounds. Therefore, since the body increase is one-third more at 1200 pounds than at 800 pounds, it follows that a more concentrated and assimilative ration must be fed to obtain the same rate of gain at the end as produced in the early part of the feeding period. However, this can seldom be done with economy, consequently if the same food is fed throughout the feeding period the gain will necessarily decrease. One should not be led to believe from this that half-finished cattle are always the most profitable, for well-finished cattle always will command a higher price to make up for the loss of the rate of gain.

#### KIND AND AMOUNT OF FEED CONSUMED.

Table II gives in concise form the total amount of feed consumed by each lot. The first week of the experiment the steers received fourteen pounds of ear corn daily, or 14.5 pounds per thousand pounds live weight. The grain ration was changed to corn-and-cob meal, January 16. By the end of the month they

TABLE II.—Total Feed Consumed.

LOT.	Ear corn.	Corn-and- cob meal.		Cotton- seed- meal.	Alfalfa.	Kafir- corn stover.	Sorghum stover.	Prairie hay.	Ensilage.
f	2078 2078	21,605 21,605	4000 4000	530 530	15,480 18,465	3100	540	5045	1400

were consuming 17 pounds a day per steer, or 15.7 pounds per thousand pounds live weight. By the end of February they were consuming 19 pounds of corn-and-cob meal daily per steer, or 16.4 pounds per thousand pounds live weight. In one month more the grain ration had increased to 20 pounds of corn-and-cob meal per steer daily, or 16.2 pounds per thousand pounds live weight.

By the end of April, 24 pounds of corn-and-cob meal was the daily grain ration per steer, or 18.4 pounds per thousand pounds live weight. At this point the grain ration was gradually changed to pure corn-meal. At the same time cottonseed-meal was introduced into the ration, fed at the rate of 1.15 pounds per thousand pounds live weight. Reference to the last two columns of Table III shows that these steers consumed very small

TABLE III.—Weights and Gains with Pounds of Feed Consumed per 100 Pounds of Gain.

No. of Lot.	No. of steers.			Weight May 23, 1904.		gain per steer	Grain eaten per 100 pounds gain.	
<u></u>	10	9615	143	12,945	3330	2.32	715.01	742.50
	10	9555	143	13,615	4060	2.83	578.25	454.80

amounts of feed for the gains made. If this had not been the case they could hardly have been fed at a profit, considering the small "margin" between the buying and the selling price, the price paid in Kansas City being \$3.49 per hundred weight, and \$4.50 being the selling price. It is not generally considered safe to figure on feeding cattle for a smaller margin than \$1.00 per hundred weight between buying and selling price.

#### FINANCIAL RESULTS.

The results of this experiment from a financial standpoint appear in table IV. This table needs little explanation. It will be

seen that the lot making the poorest gains was the least profitable. Not only was the total amount received for them less, but the cost of the various kinds of roughage fed was greater than the cost of the alfalfa hay fed to Lot II. The grain consumed by each lot was the same.

TABLE IV .- FINANCIAL STATEMENT,

LOT I.		
Cost of 10 steers in Kansas City. Freight, Kansas City to Manhattan. Commission.		\$320 86 8 02 5 00
Total cost of steers		\$333 88
Corn, 409.7 bushels, at 35 cents per bushel Cottonseed-meal, 530 pounds, at \$25.00 per ton. Alfalfa hay, 7.74 tons, at \$7.00 per ton. Kafir-corn stover and sorghum fodder, 1.82 tons, at \$2.00 per ton. Ensilage, 1400 pounds, at \$2.00 per ton. Prairie hay, 2 52 tons, at \$5.50 per ton. Total feed cost	\$143 39 6 62 54 18 3 64 1 40 13 86	223 09
Cost of steers and feed		\$556 97
By sale of steers, at \$4.50 per 100 pounds.  Balance profit.	\$578 14	21 17
Grand total	\$578 14	\$578 14
Feed cost, per 100 pounds of gain		\$6 69
LOT II.		
Cost of 10 steers in Kansas City Freight, Kansas City to Manhattan Commission.		\$320 86 8 02 5 00
Total cost of steers		\$333 88
Corn, 409.7 bushels, at 35 cents per bushel	\$143 39 6 62 64 61	214 62
Total feed cost		214 02
Total cost of steers and feed  By sale of steers, at \$4.50 per 100 pounds  Balance profit	\$608 <b>2</b> 8	\$548 50 59 78
		A
Grand total	\$608 28	\$608 28

#### CONCLUSIONS.

The results of this experiment would seem to indicate that the advantage lies with the feeding of alfalfa as the sole roughage in comparison with the feeding of other kinds in connection with alfalfa.

The total gain made by Lot I in the 143 days of feeding was 3320 pounds; of Lot II, 4060 pounds, an increase of 22.2 per cent over Lot I. It took 126.76 pounds more grain, or 21.9 per cent, to produce 100 pounds of gain in Lot I than in Lot II.

The profit per steer in Lot I was \$2.12; in Lot II, \$5.85, or more than double. The profit in either case was very small; indeed, so small as to hardly warrant steer-feeding except as a means of marketing the feed of the farm. Alfalfa hay and corn-and-cob meal form a most excellent ration for fattening, and unless future experiments change these results, we shall have to admit that this combination gives better results than the use of a greater variety of roughage.

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## Program for Fall Term, 1905, Showing

INSTRUCTOR.	First Hour.	Second Hour.	Third Hour.	Fourth Hour.
Walters	Heat & Vent 2	Arch. Comp 4	Arch. Drawing,	Drawing & Art, 13
Weeks	Drawing, S.C23		Color & Design., 34	
Brandt	Drawing, S.C23			
Willard3	Human Nutr42	Adv. Chemistry, 6		
Mathewson Watkins	Chemistry I49	Animal Nutr27 Chemistry I46	Chemistry I42	y31
Wood Popenoe ³ Dean ³	Zoology18	Adv. Ent 1 Entomology14	Adv. Ent	Geology 29 Adv. Ent 2
SchefferRemick	Diff. Calculus23	Diff. Calculus29	Algebra IV37	
HalsteadZeininger	Geometry II38 Algebra III43	Algebra III31 Geometry I31	Algebra III25	Geometry II29
Booth	Algebra II41	Algebra II44	Geometry I41 Algebra I39	Algebra III26 Algebra I30
Seaton	Trigonometry21	Trigonometry17	Trigonometry13	Algebra IV25 D. C. Mach23
Hamilton	Physics I 28 El. Physics 29	Physics I	Physics III 16 Physics I Lab Botany II 44	T&T22, W&F23
Roberts ³	Adv. Grammar, 42	Hist. Educ14	Botany 153 Logic17	Botany II39 Botany I55 Adv. Grammar. 41
McCormick	Graphics ² 7	Engineering Labora	Mech. Drawing II toryMon. 5	T & T 17, W & F 20 Shop Lect S 45
Potter	Steam Boilers ¹ , 5	Engineering Labora	tor Mon 5	T & T 17, W & F 20 Shop Lect. VS 6
Wabnitz Ridenour	Woodwork I40 Machine Shop	Woodwork I38	Woodwork I36	Woodwork II30 Mon. 12
				Shop Lect S 26
Dickens ³ Eastman ⁵	Forestry 8	Horticulture26 Pomology6		Adv. Hort 4
AhearnBrink	Rhetoric II. 22	Rhetoric II 34	Eng. Lit. I26	Floriculture 3
Rice	Rhetoric I36	Readings 40 Classics 49	Adv. Grammar. 31 Composition 27	Classics
Shoesmith ³	0105510537	••••••		
Calvin	House Mgt28	Adv. Cooking10		
Rose Monsch		Cooking, Short Cou	rse	20
Davis	Cooking			
Kammeyer	Economics28	Am. History24 Pub. Spk. 123-16	Eag. History26 Economics 14	Am. History 8 Pub. Spk. I14-17
Erf ³ Melick ³		Dairying33	· · · · · · · · · · · · · · · · · · ·	Adv. Dairying 4
Cortelyou	German I27	German I33	German I28	German IV24
JacksonValley	Readings21 Singing10	Adv. Comp23 Singing23	Adv. Comp18	German I22 Singing24
Brown	Violin44	noon; Chorus, Thursda Mandolin10	y noon	
Augspurger	Piano18	Piano	Theory & Not'n, 21 Piano23	Guitar22 Piano24
Barnes ³		Medicine I 9 Surgery 9	Materia Medica, 20 Anatomy20	
GossKinzer ³	Animal Husbandry		Vet. Science26	Bacteria 2½40
Rickman	Printing 4	Printing4		
Rodell	Bookkeeping47	Bookkeeping36	Bookkeeping44	Printing 3
Holroyd	Grammar B20 Anc. History47	Adv. Gram53	Adv. Grammar, 34	Bookkeeping55 Grammar B19
ThompsonLoomis	U. S. Hist. A25	Anc. History 40 U. S. History B, 16	Anc. History47 Geography32	Med. History48 U. S. History B. 35
Barbour. :	Phys. Geog. II39	Phys. Geog. I45	Phys. Geog I39	Phys. Geog. 152 Phys. Training, 22
Stump	Sewing III	Sewing I15	Sewing I	Sewing II14
RidenourLund	Sewing I14 Boilers & Engins	Sewing, Short Cours	se	
Wood		Algebra I35	Algebra 129	Geometry I37
Allingham	Algebra I29 Arithmetic B32	Grammar A33 Arithmetic B23		Algebra I22
Sweet Waters	Phys. Geog. I43		El. Physiology 48	Arithmetic A32
Wright	Algebra I25	Grammar A26		Arithmetic A26

¹ First half term. ² Second half term. ³ Experiment Station work.

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## Instructors, Subjects, and Number in Class.

Projection	6
Architectural Drawing.	6
Objective Drawing	6
Freehand Drawing Tu. 60, F 62, S 44  Elementary Projection Tu. 26, W 26  Geometrical Drawing Th. 29, F 37  Electro Chemistry S 21 Qualitative Analysis Chemical Laboratory	6
Geometrical Drawing. Th. 29, F 37	6
Electro Chemistry S 21 Qualitative Analysis Qualitative Analysis	6
Chemical Laboratory	
Chomical Laboratory The 29 W 82 Th St F 27	
Entomology Laboratory. Tu. 13, Th. 12 Zoology Laboratory. T & T 9, W & F 9	
Anal. Geometry 24	
D. C. Laboratory T & T 11, W & F 12	
Physics III Laboratory	
Mechanical Drawing V T&T 7	
Mechanical Drawing IVT & T 10. W & F 10	
Woodwork I. 29 Machine Shop W & E4 S & Machine Shop W &	F 4
Foundry Tb. 2 Foundry,	In. 2
Foundry  Blacksmithing I.  W 16, F & M 13  Blacksmithing I.  T & T 20, M & F 19  Blacksmithing I.  T & M 13	
Horticulture LaboratoryT & T 16, W & F 7	
Com Indeine	
Domestic Science I	
Cooking, Short Course	
Laundry	
English History 1	
English history.	
Dairy Laboratory 33	
German IV 6	
Singing	
Pond 94	
Piano	
Anatomy Laboratory. 20 Clinic W.	60
Printing. 15 Printing. 3	
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Physical Thomas 190 Division Physical Thursday I Physical Thilling	
Sewing Short Course	
Traction Engines	
Surveying. W4, F5	
Garveying W 4, F 5	

## THE INDUSTRIALIST

Published weekly during the College year by the Printing Department of the

## Kansas State Agricultural College Manhattan, Kansas,

PRES. E. R. NICHOLS	Editor-in-Chief
PROF. J. D. WALTERS	
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#### Local Notes.

Mid-term examinations, Saturday, November 4.

The bids for the erection of the new horticultural building will be opened on Saturday, November 4.

We second the motion of the *Nationalist* that the Manhattan city council have the dilapidated brick sidewalks on Moro street repaired before the cold weather sets in.

The Chemical Department has received a handsome new analytical balance for its College work. The apparatus was imported from Germany and was made by the well-known firm of Sartorius, in Goettingen.

Army news in one of the dailies last week contained the information that Captain Andrew Rowan, former commandant of cadets here, has been advanced to the rank of major and assigned to the 25th Infantry.

Rev. Henry E. Thayer, of Topeka, conducted the exercises Saturday morning, concluding with an unusually good talk on the responsibility of educated people, and the necessity of a higher standard of morality in important public positions, whether financial or political.

The Music Department is making preparations for their Annual Music Festival, to be given in the Auditorium some time during the winter term. The contemplated program will involve several choruses by a Choral Union of 100 voices, a number of pieces by the College Glee Club, a male quartet, and several instrumental pieces.

Commencing this week, each Friday afternoon drill hour for the College cadets will be devoted to battalion drills, dress parade, review, etc. Following the ceremonies the cadet band will give a short, open-air concert. Drills commence at 2:45 P. M. Captain Shaffer reports the work of the cadets this year as highly satisfactory.

The excavations for the foundations of the addition to the boiler-house are dug and the masons have commenced their part of the work. The building will join the old boiler-house on the south. The lower part to the height of ten feet will be built in heavy range work, with a large arched door in the middle of the south side; the upper part will be of small blue stone range, while the roof will be nearly flat and covered with tin. There will be a large porch roof on the south side. The addition will measure fifty-one by thirty-nine feet and furnish room for four large boilers.

The following staff has been elected to look after Jayhawker interests: Alice Loomis, '04, editor-in-chief; Sarah Hougham, '03, alumni editor; Marcia Turner, '06, literary editor; J. M. Ryan, '07, business manager; H. R. Hillman, '07, assistant business manager; M. I. Stauffer, '07, subscription manager; Donald Ross, '08, exchange editor; May Umberger, '07, reporter.

A number of professors and assistants have formed a class for the study of French and have engaged Assistant Geo. Jackson to instruct them. The class meets one evening per week at the home of Miss Minis, at corner of Fourth and Moro streets, and is composed of the following members: Professors Popenoe, Eyer, McKeever and Hamilton, Librarian Minis, Assistants Shaw, Tinkey, Zeininger, Barnes, Wood, Watkins, Loomis, and Mrs. Hamilton. Others are expected to join.

Professor Dickens and Mr. Miller have started on a two-weeks' institute trip over the Missouri Pacific railroad. The dates and places to be visited are: Lindsborg, October 25; Geneseo, October 26; Hoisington, October 27; McCracken, October 28; Scott City, October, 30; Leoti, October 31; Tribune, November 1. On the return trip the train will start east from Hutchinson, November 8, making El Dorado, November 9; Eureka, November 10; Yates Center, November 11; Iola, November 13; and Moran, November 14.

The College Y. W. C. A. needs the substantial assistance of every one connected with the College. They are doing good work and have many expenses. Their budget for the present school year requires over \$1000, a sum that they can not raise without much outside help. The following items will have to be provided for:

101.	0450.00
General Secretary	\$450 00
Y. W. C. A. House	
1. W. C. A. House	$50 \ 00$
Summer Conference	20 00
State Convention	
Titonature	
Committee Funds	20 00
. Committee Funds	25 00
Printing and Stationery	30 00
State Pledge	***************************************
Missions	
American Committee Pledge.	
World's Nickel	5 00
World's Nickel	
m-4-1	\$1015 00

Professor R. R. Price, of the Department of History and Civics, has prepared a note-book of "Topics and References for the Class in American History of the Kansas State Agricultural College." The book is a neat little volume of over a hundred pages, bound in colored cover and provided with blank pages for additional notes. The subject-matter is divided into fifty lessons and gives in each lesson a fine synopsis of the most notable events, together with dates, and a list of references stating not only the title of the reference work but the page or the pages on which the matter may be found. The volume will undoubtedly prove a great help to our students. The printing and binding was done by the College Printing Department.

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Professor Kammeyer is enjoying a visit from his father-in-law, Mr. Samuel Weber, of Kearney, Mo. The old gentleman is a veteran of the Civil War and likes to tell of his fighting the bushwhackers in the woods of Missouri. He was born near Arau, in Switzerland, and came here a young man way back in 1842; but he is well preserved and bright and does not look like a man over eighty years old.

The annual meeting of the Y. W. C. A. held at Manhattan last week was well attended. Over two hundred delegates were present, and most of them paid the College one or more visits. On Friday morning and Saturday the exercises in the Auditorium were attended by large numbers of the young women from other parts of the State, escorted by their Manhattan friends. visitors took special interest, too, in the review of the College battalion. We heard a handsome Quaker maiden say she wished she were a boy so that she could blow a horn and wear a blue uniform.

#### Alumni and Former Students.

G. W. Gasser, '05, is at Hutchinson, Kan., where he and Albert Gasser, former student, are working at carpentering.

Maud (Gardiner) Obrecht, '93, of Urbana, Ill., is visiting her sister, Lydia (Gardiner) Willard, fourth-year student in 1884.

Friends of Howard N. Rhodes, '96, and Wilma (Cross) Rhodes, '04, will be interested to learn of the birth of Marguerite L. Rhodes, on October 19.

J. H. Blachly, '00, has entered the sophomore class in the Western Dental College, Kansas City, Mo. J. W. Fields, '03, is in the junior class in the same institution.

Claude Masters, '99, is growing with the country in a new town in the Indian Territory, known as Sulphur. He is engaged at present in the real-estate business, which he reports to be booming.

Louise Spohr, '99, is reported to have purchased Parkview Hospital, Manhattan, in partnership with M. M. Davis. She will take charge the 1st of November, and with her previous experience as a nurse should succeed.

W. H. Olin, '89, professor of agronomy in the Colorado Agricultural College, made a hurried visit to the College last week and was much pleased with the advancement of the Farm, Animal Husbandry and other Departments.

Mrs. Lydia (McKee) Butterfield, wife of Earl C. Butterfield, '98, died suddenly at their home in Washington, Monday, October 23. Mrs. Butterfield was sister to Roland McKee, '00, and cousin to R. A. Oakley, '03. Her death was a most painful surprise to all, and Mr. Butterfield will have the sincere sympathy of many friends in this sorrow, which follows so quickly the wedding celebration. The burial took place Thursday, at Marysville.

Invitations are out for the marriage of Miss Marietta Smith, ['95] and Dr. Elias W. Reed ['92], of Holton, Kan., at the home of the bride's mother, Mrs. Mary A. Smith, 1212 Fremont. The wedding will occur on Wednesday, November 1, at 11 o'clock.—Nationalist.

A son, John Philip, was born to J. G. Haney, '99, and Anna (Streeter) Haney, '99, on October 23. Mr. Haney is very enthusiastic over the event and anticipates a busy time on the Deming ranch for the young man. The chances are that others will be kept busy too.

Rev. J. E. Thackrey, '93, of Kansas City, conducted the morning exercises last Friday morning. He and Elva (Palmer) Thackrey, '96, spent the morning reacquainting themselves with the College. The improvements over the old conditions were found very noticeable.

V. L. Cory, '04, now at the cooperative Experiment Station for cereal investigations, at McPherson, Kan., recently received returns of the civil service examination taken by him at Fort Worth, Tex., last June. He reports having made a good grade, particularly in his optional subject, agronomy.

Miss Elizabeth Finlayson, '04, writes to Professor Walters that she is teaching in the high school of Reading, Kan. She says: "My work is in the high school. I am assistant principal and teacher of history and English. I'm hoping to see some of our boys go to my Alma Mater at Manhattan. Our senior class consists of six very pleasant young ladies."

Wm. C. Lee, a student of former years, and private secretary to President Will, 1897-'99, was married on Wednesday, October 18, at Washington, D. C., to Miss Charlotte White. Mr. Lee is now employed in the Department of Agriculture. His many friends will be glad to call on him and Mrs. Lee at their home, 1422 Eleventh street, N. W., Washington, D. C.

The trio of young chemists who were leading a strenuous, if not scientific, life in the laboratory of the American Beet Sugar Company, Rocky Ford, Colo., have changed their occupation. Jens Nygard, '05, is now on a ranch with W. K. Evans, '05, near Colby; S. S. Fay, '05, is on the home farm near Wilsey; and Archie Moore, special student last year, is at home and on the trail of a good job.

Walter O. Gray, '04, writes from 801 East 14th street, Kansas City, Mo., as follows: "I met the College Band boys at Kansas City during the festivities and was delighted in doing so. Any one from Manhattan looks good to me. I was disappointed in not being able to attend Commencement exercises at K. S. A. C. last spring, but the many disappointments of life and the other experiences all aid in teaching us how to live." Gray still attends the Kansas City Medical College and practices some between times. He says that Loren O. Gray, sophomore in 1905, is at present principal of a three-room school at Idylwild, Kan.

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#### Press Notices.

The practical work for the last six weeks for the junior domestic science girls at the Kansas State Agricultural College has been in canning, preserving, and jelly making. The theoretical work has covered the whole subject of food preservation. An interesting exhibit of canned fruits is open to inspection.

The Mechanical Engineering Department at the Kansas State Agricultural College has started an apprentice course in shopwork, requiring four years in shops and drafting-room. A new apprentice will be taken on every six months. Preference will be given to high-school graduates. The department is working on a series of tests to determine the strength, durability and fire-resisting qualities of cement building blocks.

The drafting-rooms of the Mechanical Engineering Department at the Kansas State Agricultural College have been equipped with adjustable drawing desks, having cast-iron and steel bases, with tops of hardwood frames, containing drawing-boards built up of strips. The desks were designed and built in the department. It is the purpose to have under way each year some such work, so that commercial practice in design and construction may be given advanced students of engineering.

The special wheat and corn train over the Rock Island will be accompanied by E. R. Nichols, president of the Kansas State Agricultural College; J. T. Willard, professor of chemistry and director of the Experiment Station, who has done much work in increasing the nitrogen content of corn; A. M. TenEyck, professor of agriculture—most farmers know Professor TenEyck through his writings in the farm papers of the State; and V. M. Shoesmith, assistant professor of agriculture, who trained the winning team in the student corn-judging contest at the International in Chicago last fall. Other professors will take part.

The Experiment Station at Manhattan has received a diploma awarded it by the International Jury of Awards for its exhibit of grains at the Louisiana Purchase Exposition. The following is from the description: "The central figure of the composition, a robust, clear-eyed maiden in her first youth, Columbia, looks forward with unclouded brow intent upon a future beyond the act which she represents, placing one hand in sign of possession upon the globe, typifying the territorial acquisition, which is offered by her sister France seated at her right. Simultaneously from the other hand she passes on the torch of progress to her messenger, the youth of her country, who with winged feet stands ready to depart on his mission of civilization towards the western sun which irradiates the sky. Columbia is draped with the flag chosen as the symbol above all other, which is recognized to the farthest limits of the world and denotes the country where was the Exposition that issued the Diploma."

Efforts are being made at the Kansas State Agricultural College to acclimate macaroni spring wheat into a winter variety. As a spring variety it is adapted to Kansas soil and climate, having done better than any other spring wheat. It is hoped to produce a superior winter wheat as it now is a superior spring producer. In the tests made, one variety of the macaroni wheat has already passed two winters without winter-killing, and last season produced  $42\frac{1}{2}$  bushels per acre. The sowing for the third test has been completed.

President Nichols went to Kansas City, Thursday, to make final arrangements with the Rock Island Railroal Company for the farmers' institute train which is to start on an extended trip over their line on November 6. A complete schedule of these railroad institutes was published in the last number of the Industrialist. The dates and towns arranged for the Rock Island train are as follows: November 6, Caldwell to Peabody; November 7, Peabody to Salina; November 8, Herington to Turon; November 9, Liberal to Dodge City; November 10, Dodge City to Preston; November 11, Herington to Topeka; November 13, Belleville to McFarland; November 14, Topeka to Troy; November 15, Horton to Belleville, via Fairbury; November 16, Belleville to Phillipsburg; November 17, Goodland to Norton; November 18, Norton to Kensington.

Prof. B. F. Eyer, of the Department of Physics and Electrical Engineering at the Kansas State Agricultural College, received a letter recently from the American Institute of Electrical Engineers, New York. The letter was to the effect that the College has been "placed upon the list of institutions of learning eligible to present students in competition for the Edison gold medal," which was originated by the American Institute in honor of Thomas A. Edison and for which contestants present a thesis on a subject assigned. This honor places the College electrical engineering course on an equal basis with those of Perdue, Armour, Boston Institute of Technology, Cornell, and others. It comes as a result of investigations on the part of the institute itself which have been going on for several months.

The attendance of the Kansas State Agricultural College has increased so rapidly the last half-dozen years that statistical comparisons like the following are startling to even those who have watched its phenomenal growth. The combined attendance of the past eight years is considerably above ten thousand and is larger by far than the combined attendance of the first thirty-five years. The attendance for last year was over six times as large as the attendance during the first year of President Fairchilds' administra-Similar statements might be made concerning the number of graduates. The College has graduated nearly half of its Alumni during the past seven years. In 1897 the College was practically a one-course institution; to-day it teaches seven four-year courses, three short courses, and maintains a preparatory school of two Verily, there has been a typical Kanhundred or more students. sas growth all along the line.

# Kansas State Agricultural College

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Each leading to B. S. degree, as follows:

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For Catalogue or other information, address

E. R. Nichols, President Manhattan, -- Kansas

# INDUSTRIALISI

Vol. 32

ISSUED WEEKLY BY .

No. 7

Kansas State Agricultural College Manhattan

120

PUBLISHED BY
PRINTING DEPARTMENT
J. D. RICKMAN, Supt.

Entered at post-office, Manhattan, Kan., as second-class matter. Act of July 16, 1894.

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## THE INDUSTRIALIST.

VOL. 32.

MANHATTAN, KAN., Nov. 6, 1905.

No. 7

#### Kansas Experiment Station Egg-Laying Contest.

(Press Bulletin No. 147, from Dairy and Animal Industry Department.)

The egg-laying contest, arranged by the Kansas White Wyandotte Club and conducted by the Dairy and Animal Industry Department of the Kansas Experiment Station, was completed October 31. Each contesting pen conconsisted of a male and six females, and the competition lasted one year.

The hens have made a fair record, and the average yield will compare favorably with that of other authentic egg-laying contests. Better records would probably have been made had it not been for some unfavorable conditions which accompany the carrying on of such a contest; as, for instance, the transportation and frequent handling of the fowls, and the adaptation to strange rations and surroundings, all of which tend to diminish the egg yield. Beside these usual unfavorable conditions, the winter was the most severe ever known in the State. The pens in which it was necessary to house the contest fowls were of the curtain front type, and built for the accommodation of twenty-five fowls each. This house, with its ample ventilation, is perfectly satisfactory when filled with a sufficient number of birds per pen to maintain the heat, but with only the six hens prescribed by the rules of the contest the house was cold and the egg yield was reduced proportionally.

The methods of care and feeding followed were designed to bring out fair comparative results of the breeds and of individuals, rather than forced egg yields. A variety of grain was fed the year round. This was fed in straw in the winter and in the yards in the summer. An evening mash was fed the entire year, composed at first of equal parts of bran, chop, meat-meal, shorts, and linseed meal, and later of bran, chop, and meat-meal only. In the winter mangles and alfalfa leaves, and in the summer green alfalfa and rape, were used for bulky food. Oyster shell and grit were supplied. No fresh meat, hot mashes, ground bone, red pepper, patent foods or medicines were fed. The intention was to use only such foods as produced normal results

and can be secured at any place or in any season.

#### CONTESTING PENS.

The following is the list of contesting pens, with notes upon their work: Single Comb White Leghorns, owned by the Kansas Agricultural College. -This pen, together with the Buff Wyandottes owned by Mr. Wheeler, are not in the contest as arranged by the Kansas White Wyandotte Club, and should not be considered in the honors of that contest. prizes offered, these results are published with those of the regular contest. Although the College birds were moved from another part of the farm to the laying quarters, it must be admitted that they had some advantage over the

birds from a distance, especially in the substitution of other pullets for those lost.

Rose Comb White Leghorns, owned by Mrs. Jennie E. Warren, Cottonwood Falls, Kan,—This pen wins first of the regular contest birds. It is worthy of note that their egg yield held up better in the winter than the Single Comb Leghorns. Both Single and Rose Comb Leghorns suffered a loss of two birds each. The Single Comb birds died suddenly during laying periods, while the Rose Comb pullets died of what is known as "going light."

American Reds, owned by Dr. J. Martin, of Wichita, Kan.—These were the best matured pullets at the beginning of the contest, and show the best winter egg record. They were, in fact, hatched so early that they molted during January. There was no sickness or loss this pen.

White Wyandottes, owned by Beecher & Beecher, Belleville, Kan.—These pullets maintained good health throughout, except No. B1B. This fowl laid poorly shaped eggs, and during October developed a protrusion of the egg-laying organs, which resulted in death of the hen. No. 4C11 of this group is exceptional for steady laying, and also for the earliest and most rapid molt.

Buff Wyandottes, owned by Mr. G. C. Wheeler, Manhattan, Kan.—This pen showed uniformly good layers except 459, whose unusually poor work brings the pen from a high to a low rank. The best of health prevailed and no loss occurred.

Barred Plymouth Rocks, owned by Mrs. J. W. Jones, Abilene, Kan.—This pen consisted of hens, while all others entered were pullets. This was due to an unfortunate misunderstanding, and is manifestly unfair to the breed, for hens are generally considered to be poorer winter layers than pullets. The hens were inclined to over-fatness and were heavy eaters. No. 45 of this pen has a most excellent record for a matured hen. These hens maintained excellent health and suffered no loss.

Light Brahmas, owned by Mr. F. A. Brown, Onaga, Kan.—Brahmas are slow in developing, and these were not developed when placed in the contest and did not lay well except for a short time in the spring. They were in good health, one bird being lost by accident shortly before the close of the contest.

The following tables give the complete results of the contest. The prices taken are on the local Manhattan market, and for sake of comparison, feed prices are given per cwt. All weights given are in pounds or decimal fractions of pounds. The individual loss or gain is figured by assuming that each hen ate one-seventh of the food consumed by the pen. The molting periods are given by the month in which they occurred. The number of broody periods separated by a period of laying is recorded. The laying time lost in breaking up broodiness ranged from ten days upward. The per cent of fertility is recorded only for hens from which ten or more eggs were incubated. The records of the weights of eggs were taken during the summer months, and are incomplete because a few hens were not then laying. The total weights recorded are only approximations, as the weights of a hen's eggs are not uniform throughout the season. The feed records include all grain and mash fed and the costs and profits figured are intended to serve for the comparison of the pens, rather than as a basis for figuring the profits of commercial egg-production.

TABLE No. 1-Egg Records of Pens.

BREED	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Total
Single-Comb White Leghorns Rose-Comb White Leghorns	6	59	16 81	36 51	131 111	103 93	121 112	125	111 71	94 63 52	57 69 41	28 32 31	885 828
American Reds	2	102 36 44	54 43 82	24 31 75	127 139 110	94 101 84	96 120 82	68 91 73	72 76 86		77 47	35 21	820 799 764
Barred Plymouth Rocks	2	29 4	20 19	14 43	129 111	88 88	93 102	72 59	72 50	52 34	37 25	11 4	619 539

TABLE No. 2-Value of Eggs and Profit above Food Cost.

	Single Comb White Leghorns	Rose Comb White Leghorns	American Reds	White Wyandottes	Buff Wyandottes	Barred Plymouth Rocks	Light Brahmas
November December. January February March April May June July August September October	\$0.253 .804 .269 .558 1.454 1.112 1.367 .950 .932 .959 .650 .342	\$0.109 .968 1.361 .791 1.232 1.004 1.266 .608 .596 .643 .787 .378	\$1.068 1.673 .907 .372 1.410 1.015 1.085 .517 .605 .530 .467 .378	\$0.036 .590 .722 .481 1.543 1.091 1.356 .692 .638 .490 .878 .427	\$0.722 1.378 1.163 1.221 .907 .927 .555 .722 .612 .536 .247	\$0.036 .476 .336 .217 1.432 .950 1.051 .547 .605 .530 .422 .134	\$0.066 .319 .667 .1.232 .950 .1.153 .448 .420 .347 .285 .049
Total Value	\$9.650 4.764 4.886	\$9.743 4.675 5.068	\$10.027 5.579 4.448	\$8.944 5.676 3.268	\$8.990 5.678 3.312	\$6.736 6.018 .718	\$5.936 5.814 .122

TABLE No. 3.—Prices Used in Computing Data; Feeds per cwt.; Egg per Dozen.

	1		1	1		No.		1				
FEED.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
Corn	\$0.60	\$0.60	\$0.62	\$0.63	\$0.63	\$0.66	\$0.66		\$0.75	\$0.82	\$0.76	\$0.74
Wheat	1.42	1.50	1.58	1.63	1.66	1.75	1.58	1.50	1.42	1.33	1.25	1.22
Oats Barley	.84	1.00	1.00	1.00	1.00	1.00	1.10	1.10	1.10	1.10	1.00	1.00
Kafir-corn	.62	.62	.66	.66	.71	.71	.71	.71	.71	.71	.71	.71
Corn-meal		.80	.85	.85	.90	.95	.85	.80	.75	.70	.65	.65
Shorts	. 95	.95	1.00	1.00	1.05	1.00	.95	.90	1.50	1.50	1.50	1.50
Linseed-meal Meat meal		1.50	1.50	1.50	1.50	1.50 2.00	1.50	1.50	2.00	2.00	2.00	2.00
Eggs		.197	.202	.186	.133	.130	.135	.093	.101	.123	.137	.147

TABLE No. 4.—Individual Laying Records.

HEN.	No	v.	Dec,	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Tota
51. 31. 221. 119. 72. 50. 60. 60. 60. 60. 60. 60. 60. 60. 60. 6		8 6 0 0	16 16 5 5 4 3	2 3 3 2 6 0	14 6 4 10	20 23 25 21 21	17 21 20 13 5 19 8	13 22 22 22 21 24 19	23 20 21 21 21 20 20	20 22 23 19 21 6	21 18 22 14 14 5	20 5 2 10 17 0	8 0 0 0 11 0 9	183 163 144 136 115 101 33 15

TABLE No. 4 (Concluded).

HEN.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	Мау.	Jnue.	July.	Aug.	Sept.	Oct.	Total
6	0	12	18	19	23	17	19	19	16	12	11	16	182
98	3	16	18	17	23	20	17	15	14	14	11		168
94	0	3	5	6	22	21	23	21	16	18	18	0	
8	3	14	15	5	24	14	18	11	15	10	14	11	157
00	0	0	11	1	19	13	14	8	10		15		154
895		U		12.00	10	8	21	6	0	4		1	96
89 ⁵	0	14	14	3	0					5	0	0	40 31
3	1 1 -		10		- 10								
	15	24	19	0	19	16	22	11	18	9	11	20	184
340	14	19	0	2	21	19	19	13	16	10	10	1	144
6	17	24	10	1	19	13	13	7	9	12	5	10	140
214	10	12	0	1	24	17	22	20	15	14	4	0.	139
233	3	23	19	17	22	13	8	5	0	0	0	0	110
218	0	0	6	3	22	16	12	12	14	7	11	0	103
4C11	2	22	24	19	24	21	23	24	5	5	21	.0	190
4C9	0	0	19	10	22	13	12	16	10	12	15		
4A7	0	0	0	0	24	17	23	14	15	12		10	139
4C12	0	0	0	0	23	18	26	9	22		22	22	149
B1B ⁷	0	0	0	0	23	16	20	15		9	12	0	119
4A4	0	14	0	2	23	16	16	13	15	6	7	3	105
		11	- 0 1	~	20	10	10	10	9	4	0	0	97
6	0	20	21	14	21	. 15	13	18	18	15	19	6	180
14	0	9	18	2	22	19	18	16	20	12	21	5	162
20	0	3	16	16	27	14	21	18	17	16	2		151
12	0 1	12	17	16	22	18	19	8	16		0	1	133
42	0	0	10	19	18	18	9			5		0	
459	0	0	0	8	0	0	2	13	15	12	5	9	128
	0 1		0 1	0 (	0 1	0 1	2	0	0	0	0	0	10
45	0	14	20	10	24	18	20	21	14	15	18	11	185
7	2 0	15	0	2	22	11	21	13	11	18	16	0	131
67		0	0	0	23	13	17	13	14	3	0	0	83
98	0	0	0	0	18	16	13	10	13	9	1	0	80
10	0	0	0	2	22	17	8	12	11	5	ô	0	77
70	0	0	0	0	20	13	14	3	9	2	2	ő	63
25	0	0	9	18	18	15	11	14	100	10			400
88	0	4	2 7	10	23	17		14	17	10	1	0	106
70	0	0	0				19	12	3	0	8	0	103
54	0	0	0	0	21	17	19	9	12	7	10	0	95
18	0			0	13	17	19	15	11	7	4	4	90
21	0	0	0	2	20	12	17	7	7	10	0	0	75
~1	U	0	10	13	16	10	17	2	0	0	2	0	70

TABLE No. 5-Other Individual Data.

HEN.	Value of Eggs	Loss	Gain	Moulting Periods	Times Broody	Percent of Fertility	Pounds of Eggs, perdoz.	Estimated total wt., pounds
51 3 21 19 7 50 60 106 .	\$2.079 1.823 1.538 1.457 1.177 1.088 .384 .144		\$1.286 1.128 .743 .663 .756 .298 .011	Oct. Oct. Oct. Oct. Sept. Oct.	0 0 0 0 0 0 0	100 95 93 84 59 89 96	1.38 1.35 1.35 1.31 1.61 1.41	20.9 18.2 16.5 14.8 15.0 11.9
6 98 94 66 68 89 25	2.169 2.047 1.678 1.820 1.079 .420	.013	1.390 1.268 .899 1.050 .300	Oct. Oct. Oct. Oct. Oct.	0 0 0 1 3 0	100	1.40 1.39 1.40 1.23 1.41	21.2 19.6 18.3 15.8 11.3

¹ Died Sept. 12. ² Entered April 17. ³ Died April 16.

Entered September 25.
 Entered Apr. 5, Died Oct. 24.
 Died March 31.

Died October 18.
 Died October 21.

TABLE No. 5 (Concluded).

Hen.	Value of Eggs	Loss	Gain	Moulting Periods	Times Broody	Percent of Fertility	Pounds of Eggs, per doz.	Estimated total wt., pounds
3	2.333 1.710 1.814 1.558 1.531 1.105		1.403 .770 .884 .628 .601 .175	Jan Jan Jan Jan Oct	2 5 4 1 3 5	90 96 92 90 65 79	1.48 1.56 1.40 1.37	22.7 18.7 16.3 15.0
4C11. 4C9 4A7 4C12. B1B 4A4	2.363 1.605 1.574 1.225 1.062 1.085		1.412 .654 .623 .274 .146 .134	July Sept Aug Aug	1 4 3 4 0 3	97 92 83 95 93 97	1.68 1.57 1.42 1.55 1.49 1.43	26.6 19.5 18.8 13.5 12.7 11.6
6	2.161 1.836 1.722 1.630 1.470	.799	1.215 .890 .876 .684 .529	Oct Oct Sept Oct	4 2 0 2 5 1	50 53	1.47 1.40 1.60 1.33 1.42	23.0 16.2 20.0 14.7 15.1
45	2.167 1.471 .835 .808 .784 .662		1.164	Aug Sept Aug Sept Sept	0 2 1 2 1 2 1 2	57 91 100 92 100 90	1.45 1.38 1.40 1.52 1.51 1.40	22.2 15.1 10.8 10.1 9.6 8.1
25. 8. 70. 54. 18. 21.	1.151 1.199 .986 .909 .789 .887	.065 .185 .087	.177 .260 .012	Oct Aug July July July Sept	7 0 2 3 5 1		1.45 1.57 1.60 1.45 1.71 1.53	12.8 13.5 12.5 10.4 10.7 8.9

TABLE No. 6.—Amount in Pounds and Cost of Feed by Months.

SINGLE-COMB WHITE LEGHORNS.

FEED.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.
Corn	5.0 5.5	6.0	4.2 6.0	3.4 6.8	6.0	8.0 7.0	7.3 6.1 3.4	6.4 6.4 2.7	7.7 7.0 3.0	8.2 5.8 3.8	8.1 5.4 4.2	10.3
Oats. Barley Kafir-corn Corn-meal Bran Shorts	2.0 5.5 5.0 5.0 5.0	3.0 6.0 5.1 5.1 5.1	6.8 7.1 4.8 4.8	6.2 6.3 3.6 3.6 3.6	1.0 4.5 3.7 3.7 3.7	2.0 3.1 5.8 5.8	6.2 6.2	2.8  7.0 7.0	3.1 6.5 6.5	7.3 7.3	4.9 4.9 4.9 4.9	2. 4. 4. 4. 4.
Linseed-meal Meat meal Cost, in cents	5.0 5.0 .466	5.1 5.1 .503	$4.8 \\ 4.8 \\ .535$	3.6 3.6 .447	3.7 3.7 .439	5.8 .439	6.2	7.0	6.5	7.3	4.9	4.

#### ROSE COMB WHITE LEGHORNS.

									1	1	1	000 11 100
Corn	5.0 5.5	6.0	4 2 6.0	3.4 6.8	6.0 7.5	8.0 7.0	7.1 5.8 3.4	6.6 6.6 2.7	7.2 6 4 3.0	7.5 5.4 3.8	8.4 5.7 4.2	8.1
OatsBarley	2.0	3.0	6.8	6.2	1.0	2.0	2.5	2.8	3.1	3.6		2.4
Kafir-corn	5.5	6.0	7.1	6.3	4.5	3.1			6.5	7.3	4.9	4.1
Corn-meal	4.8	5.1	5.2	3.8	3.7	5.4	6.2	7.0	6.5	7.3	4.9	4.1
Bran	4.8	5.1	5.2	3.8	3.7	3.4	0.2				4.9	4.1
Shorts	4.8	5.1	5.2	3.8	3.7					7.3	4.9	4.1
Meat meal	4.8	5.1	5.2	3.8	3.7	5.4	6.2	7.0	6.5	.477	.453	.373
Cost, in cents	. 452	.503	.559	.398	.439	. 429	164.	. 701	. 200			

## TABLE No. 6 (Concluded). AMERICAN REDS.

				AME	RICAN	REDS.						
FEED.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June.	July.	Aug.	Sept.	Oct
Corn Wheat Oats Barley Kafir-corn	6.1 6.8  6.0 7.2	6.0 6.0  3.0 6.0	4.2 6.0 6.8 7.1	3.4 6.8  6.2	6.0 7.5	8.0 7.0 2.0	8.4 7.9 3.4 2.5	8.7 8.3 2.7 2.8	10.1 7.0 3.0 3.1	10.2 6.4 3.8 3.6	11.7 6.6 4.2	10. 7 2.
Corn-meal Bran Shorts Linseed-meal Meat meal	5.1 5.1 5.1 5.1 5.1	5.8 5.8 5.8 5.8 5.8	6.2 6.2 6.2 6.2	6.3 4.8 4.8 4.8 4.8 4.8	4.5 4.4 4.4 4.4 4.4 4.4	3.1 6.7 6.7	7.9	6.8 6.8 	7.6 7.6 7.6	8.4 8.4  8.4	6.0 6.0 6.0 6.0 6.0	5. 5. 5. 5.
Cost in cents	.536	.619	.638	.523 White	.523 WYA	NDOT	.538 TES	.514	.521	.556	.560	.51
The second secon	1						12.5.		1000			-
Corn Wheat Oats Barley Kafir-corn	6.1 6.8  6.0 7.2	6.0 6.0 	4.2 6.0 6.8 7.1	3.4 6.8  6.2	6.0 7.5 	8.0 7.0 2.0	8.4 7.9 3.4 2.5	9.1 8.8 2.7 2.8	12.9 8.2 3.0 3.1	10.8 7.9 3.8 3.6	13.6 6.6 4.2	10.8
Bran	5.6 5.6 5.6 5.6	6.0 6.0 6.0 6.0 6.0	6.2 6.2 6.2 6.2	6.3 5.2 5.2 5.2 5.2	4.5 4.9 4.9 4.9 4.9	3.1 7.7 7.7	7.8	8.5 8.5	8.3 8.3	9.1 9.1	5.8 5.8 5.8 5.8	5.2 5.2 5.2 5.2
Meat meal Cost, in cents	5.6	6.0	6.2	5.2	4.9	7.7	7.8	8.5 .573	8.3 .581	9.1	5.8	5.2
		41600	Bt	JFF W	YAND	OTTES.						
Corn	6.1	6.0	4.2 6.0	3.4 6.8	6.0	8.0	8.4 7.5	9.0	11.6	10.8	10.8	10.2
Kafir-corn	6.0 7.2 6.6 6.6	3.0 6.0 6.2 6.2	6.8. 7.1 7.0 7.0	6.2 6.3 5.4	1.0 4.5 4.8	2:0 3.1 7.4	3.4 2.5	2.7 2.8 8.1	3.0 3.1 7.6	3.8 3.6  8.7	4.2	2.4
Shorts	6.6 6.6 6.6 .631	6.2 6.2 6.2 .572	7.0 7.0 7.0 7.0	5.4 5.4 5.4 5.4 .561	4.8 4.8 4.8 4.8 4.95	7.4	7.2	8.1	7.6	8.7	5.7 5.7 5.7 5.7	5.1 5.1 5.1 5.1
		Charles	2	ED PL	Selen S	10		.550	.540	.587	536	.479
Corn	6.1	6.0	10	0.1			1				1	
Wheat	6.8	3.0	4.2 6.0  6.8 7.1	3.4 6.8 6.2 6.3	6.0 7.5 1.0 4.5	8.0 7.0 2.0 3.1	8.4 7.2 3.4 2.5	9.0 8.6 2.7 2.8	12.5 9.0 3.0 3.1	13.2 7.9 3.8 3.6	14.1 6.3 4.2	10.8 6.9  2.4
Corn-mea Bran Shorts Linseed-meal	7.2 7.2 7.2 7.2	6.4 6.4 6.4 6.4	7.2 7.2 7.2 7.2	5.4 5.4 5.4 5.4	5.0 5.0 5.0	8.0	10.0	9.4	8.3 8.3	9.5 9.5	5.9	5.2 5.2 5.2 5.2
Meat meal			7.2	5.4.	5.0	8.0	10.0	9.4	8.3	9.5	5.9	5.2
			L	IGHT			1000	.000	.000 1			.489
Corn	6.1	6.0	4.2 6.0	3.4	6.0	8.0	8.4	9.0	12.5		2.9	10.8
Oats	6.0	3.0 6.0	6.8	6.8	7.5 1.0 4.5	7.0 2.0 3.1	7.2 3.4 2.5	8.6 2.7 2.8	9.0 3.0 3.1	3.8	6.3	2.4
Bran	6.4 6.4 6.4	6.4 6.4 6.4	7.6 7.6 7.6 7.6 7.6	5.6 5.6 5.6	5.0 5.0 5.0	7.9	8.4	8.6	8.1	8.5	5 7 5.7 5.7 5.7	5.1 5.1 5.1 5.1
	010			5.6 567		7.9	8.4	8.6	8.1	8.5	5.7 548	5.1

O. ERF, MILO HASTINGS.

### THE INDUSTRIALIST

Published weekly during the College year by the Printing Department of the

### Kansas State Agricultural College

Manhattan, Kansas.

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#### Local Notes.

Professor McKeever is building an addition to his residence on Houston street.

Professor McKeever will attend the Thanksgiving session of the Golden Belt Teacher's Association, at Hays, and deliver an address.

The Farm Department is behind in fall work on account of rainy Mondays. Students are employed for the farm work and they can work only on Mondays and occasional afternoons.

Professor McCormick received a telegram from a railroad in Texas, Monday, asking for a man to take a position as draftsman at \$65 a month. He says he gets similar calls frequently.

Number two of the College Lecture Course, consisting of a concert by the Jackson-Sammis company, was given in the Auditorium to an appreciative audience last Tuesday evening.

Professor Kammeyer will deliver a lecture on "The Teacher as a Factor in the Promotion of Civic Righteousness" before the Thanksgiving session of the Middle West Kansas Teachers' Association, at Smith Center.

Professor Valley and Miss Gertrude Hilliard went to Randolph on Friday, October 27, to assist in a concert for the benefit of the Ladies' Aid Society of the Methodist church. They report a large and appreciative audience.

The next number of the College Lecture Course will be a humorous lecture, with impersonations by the well-known Ralph Parlette. The lecture is billed for December 1 and we predict that it will draw a full house.

Pres. E. R. Nichols is on the program of the Thanksgiving session of the North Central Kansas Teachers' Association, to be held at Abilene, on November 30, December 1 and 2. He will speak on "Agricultural Educatian."

The Farm Department has selected several hundred bushels of choice seed-corn and will have seed for sale of the following varieties: Reid's Yellow Dent, Kansas Sunflower, McAuley's White Dent, Hildreth, Silver Mine and Boon County White.

The Kansas Experiment Stations at Manhattan, Fort Hays and McPherson are growing for seed several of the best-producing varieties of wheat, as shown by the test at the several station farms. Some six hundred bushels of well-bred seed-wheat were sold by the Stations to Kansas farmers last fall, and nearly five hundred acres of winter grain have been sown to provide seed for next year.

E. J. Evans, senior in the architectural course, has made a neat set of reduced drawings of the floor plans of the new Y. M. C. A. building. The drawings will be sent to the photo-engraver to be "cut" and the INDUSTRIALIST will print them in a future issue.

The football game at the Athletic Park last Monday resulted in a score of 10 to 5 in favor of our boys and against the St. Mary's College team. The battle was fierce, but not more so than the picture of our left-end man, C. Walker, which appeared in the Topeka *State Journal* on Tuesday.

The Kansas State Agricultural College is getting to be well known away beyond the borders of the State, and students are coming here from all parts of the world. The latest arrival is a full-blooded Porto Rican, from San Juan, Senor Guillermo Maimyo, who intends to take a course in agriculture.

Each Friday afternoon the College cadets give a battalion drill and dress parade in front of the Main College building, to which the public are invited. Following the review the band will give a short open-air concert. The drill commences at 2:45 P. M. Captain Shaffer reports the work of the cadets this fall as highly satisfactory.

John S. Greenland, short-course student last winter, writes asking Professor TenEyck to come up to Clifton some Monday and deliver an address to his neighbors on corn-breeding. He agrees to pay all bills and secure a good audience. He says: "My neighborhood needs some one to tell them about a higher class of farming."

Word comes from Hutchinson, Kan., that the sample oiled road built there under the supervision of Professor Dickens, of this College, is a success. The other College sample road now being built along the east wall of the College farm and extending to the north gate of the city park is ready for the crude-oil coating, and it is expected to put this on as soon as the oil arrives.

A number of frosty nights last week have robbed the ampelopsis vines on the College buildings of their beautiful fall colored foliage, but the elms, maples and oaks of the campus in their royal bronzes and purples are still things of beauty and a joy, while the many cedars and pines produce stronger contrasts in the landscape than ever. The month of October is the "May" of Kansas.

It speaks volumes for the character and good sense of our twelve hundred students that there were no howling mobs prowling about the city and the College on the night of "All Saints" last week. The local editor walked through a number of streets on the following morning and asked several citizens concerning the doings of possible ruffians, but the only evidence of mischief seen was a spring wagon run into a street crossing near the College gate. Every one of the parties asked said that the quarter had been as quiet as usual during the night. We venture to say that there is not a better behaving lot of students in America, and we are proud of them.

The junior girls in the domestic science course marched into chapel one day last week, dressed in their neat and clean laboratory suits, giving the class yell, which for its originality will bear repeating. It is:

Carbohydrates, sterilization, Stereometric configuration, Kneed the dough and set the leaven, We're the cooks of naughty-seven.

The International Live Stock Exposition at Chicago is postponed until the week of December 16 to 23, through the inability of the builders of the new Amphitheatre to secure the structural steel on time. All events pertaining to the exposition will be held on days of week corresponding to those arranged the previously advertised week. Plans are being considered to send a delegation of students from the agricultural course to take part in the stockjudging contest.

The South American countries are waking up. A short time ago the College received a letter from Montevideo, Uruguay, asking for a young man having the educational training and other qualifications to become professor of agriculture and veterinary science and who could be relied upon to build up such a department at their University. The position carried with it a salary of \$3,591 in gold per annum. Similar requests have come to the College from South and Central America for several years.

Mid-term examinations were held in all the classes last Saturday and the Faculty are busy figuring out the averages for the first half of the fall term. It will undoubtedly be found that a majority of the students have done well, but there will also be a long list of total or partial failures, and as a result of these short-comings there will be readjustments of work, interviews in the sanctum of the President, and possibly some hasty departures from Manhattan and its great halls of technical learning. In most cases the students who failed might give good reasons for their short comings, such as sickness, immaturity, or insufficient preparatory work. In some cases, however, the failing students must blame themselves, for "No one can serve two masters," and "there is no royal road to knowledge" except work, more work, and lots of hard work.

In its report of the convention of the Second Kansas District Federation of Women's Clubs, which was in session in Kansas City, Kas., two weeks ago, the Kansas City Star says: "Domestic economics, involving suggestions for the solution of the servant-girl problem and also the question of educating the young women to compete with men in the business world, engaged the attention of the convention. The crowning feature of the last meeting was a debate between Miss Bertha Bacheller, a teacher in the Manual Training High School of this city, and Mrs. Eustace Brown, of Olathe, on the question: 'Should We Educate Our Girls to Compete With Men in the Business World?' The debate lasted an hour, with Miss Bacheller speaking in the affirmative and Mrs. Brown in the negative. Every phase of the question was covered

by the two speakers—one contending for an education that would equip a girl with judgment, foresight, self-control, and mutual helpfulness to meet the all possible needs; the other arguing for an education calling for the highest faculties and the strongest powers to be utilized for the home." Miss Bertha Bacheller is a product of this College. She graduated here in 1888, was appointed assistant in the Domestic Science Department and took a postgraduate course for which she received the degree of M. S.

### Alumni and Former Students.

Edith McDowell, '93, of Elkton, Colo., is visiting friends in Manhattan,

Minnie Howell, '01, is now employed as a teacher in the Douglas school in Manhattan.

Gertrude Nicholson, '05, will leave soon to take a position in the Pine Point Indian School, near Park Rapids, Minn.

Geo. A. Dean, '95, and Minerva (Blachly) Dean, '00, are the happy parents of a daughter, born Friday, November 3, 1905.

Schuyler Nichols, '98, who has been practicing medicine at Herington, Kan., went to Chicago recently to take a post-graduate course in surgery.

The Manhattan Republic has been purchased by C. A. Kimball, '93, editor of the Courtland Register, and E. W. Kimball, '02, who has been in charge of the Scandia Journal for some time.

Jessie Hoover, '05, gave a demonstration lecture before the farmers' institute at Indian Creek (Shawnee county) on the 20th. We learn from the *State Journal* that Governor Hoch, who was present, was highly pleased with this feature of the program.

Wednesday evening, October 25, at the home of Mr. and Mrs. Axtell, of Fairbury, Neb., occurred the marriage of their daughter, Idella M. Axtell, and Melville E. Joslin of Randall, Kan. Mr. Joslin attended College here at one time and is well known by Manhattan and College people. Mr. and Mrs. Joslin will make their home in Randall.—Nationalist.

Rev. Geo. H. Perry, Jr., junior student in 1877, and whose wife is Grace (Parker) Perry, '80, writes from Pocatello, Ida.: "We are at present interested somewhat in farming at this place and, thanks to Professor Ward and the K. S. A. C., I hold a state license as surveyor, which is very convenient while taking advantage of Uncle Sam's liberal land offers. Some readers of the Industrial Ist may be interested to know that I have not left the ministry, though for the present out of the pastorate. It is worth while at such a time to have a profession on the side that pays as well as my surveying and irrigation engineering, which latter branch of the business I did not learn at Manhattan, though I did lay the foundation for it there."

Earl C. Butterfield, '98, returned Friday to his work in Washington, D. C. His sister, Miss Margaret, accompanied him and will spend the winter there. Miss Mary Davis, '04, who has been employed in the College post-office, will have charge of Miss Butterfield's work in the Secretary's office, and Miss Vera McDonald, '04, will be in the post-office.

Dr. E. W. Reed, '92, and Marietta Smith, '95, were married at the residence of the bride's mother, in Manhattan, at 11 A. M., November 1, by Reverend Clearwaters, brother-in-law of the bride. The wedding was a very quiet one because of the serious illness of Miss Smith's sister Lottie, and very few guests were present excepting relatives. The bride's sister, Frankie (Green) Clearwaters, former student, and her two children were present, with Reverend Clearwaters, from Fisher, Ind. Mr. and Mrs. Reed made a short trip and will in due time be at home at Holton, where Dr. Reed is practicing his profession.

The work at the McPherson Station is almost wholly with cereals. At the Ft. Hays Station the work done up to the present time has been largely with cereals, grasses, and forage crops; some cultivation and irrigation experiments have been carried on with corn, and several varieties of corn have been grown in a comparative trial for the past two seasons. Varieties which have produced well are: Kellogg's Pride of Saline, Smith Center Yellow, and Early Mastadon.

During the past three seasons forty-six varieties of oats have been tested at the Manhattan Station. The best producing varieties, as shown by these tests, are the Sixty Day, giving an average yield of 46.8 bushels; the Kherson, 43.3 bushels; and the Red Texas, 39.0 per acre, respectively. Other standard varieties grown in northern and eastern states, such as Silver Mine, Early Champion, and Lincoln, do not succeed well at the Kansas Station compared with the varieties named.

Spring wheat does not usually succeed well in Kansas. The Durum wheats have been tested at the several experiment stations in the State, and as a rule produce better than the common spring wheats. At the Manhattan Station during the past three seasons the average yield of Durum wheat has been 14.1 bushels per acre, while the best producing common spring wheat has given only an average yield of 10.3 bushels per acre. At the Ft. Hays Branch Station the following varieties have given the largest average yields during the past three seasons: Kubanka, 8.9 bushels; Velvet Don, 6.6 bushels; and Black Don, 6 bushels per acre, respectively. At the McPherson Station during the past three seasons the Kubanka has given an average yield of 11.5 bushels; the Black Don, 10 bushels; and the Pellissier, 8.6 bushels per acre, respectively.

### Press Notices.

A pamphlet entitled "Problems in Dairy Management" has been issued by Prof. Oscar Erf, of the Dairy Husbandry Department of the Kansas State Agricultural College. It is intended chiefly for use in classes. It gives in a practical way such information as is of use to the dairyman with reference to the ration, the milk flow, butter fat, improving the herd, etc.

## Valuable Information For Farmers.

Prof. A. M. TenEyck, of the Agriculture Department at the Kansas State Agricultural College, has issued a circular giving information regarding the best-producing varieties of corn, wheat, and other grains, as shown by the comparative tests at the Kansas Experiment Station at Manhattan, the Branch Experiment Station at Hays, and the Station at McPherson conducted by the Kansas Station in cooperation with the United States Department of Agriculture. These stations have not only tested a large number of grains, but the best producers are planted in larger areas for the production of seed, which is sold to farmers of the Plots of 80 acres at Manhattan, 450 at Hays, and upwards of 20 at McPherson, have been used for the production of winter grains, chiefly wheat. The circular will be of considerable value to farmers and will be issued to them by Professor TenEyck from the Rock Island wheat and corn special, which he will accompany as one of the lecturers. Professor Ten Eyck and Assistant Professor Shoesmith are also preparing charts and other demonstration material, showing results of experimental crop production, and of wheat breeding and production, for use on the trip.

## Weather Report for October, 1905.

The weather report of the Kansas State Agricultural College weather station, for October, 1905, shows a mean daily temperature for the month of 55.78°, making it the coldest October since 1898. The mean maximum temperature was 67.19°, and the mean minimum 44.38°. The highest temperature for the month was 89° on October 3, the lowest 24° on October 31. The highest temperature for October during the past forty-seven years was 96° in 1898, and the lowest 11° in 1863.

The first killing frost last month came October 11, which was eleven days earlier than last year, but is near the average date, since 23 first killing frosts of the 47 recorded fell between October 5 and October 15.

The rainfall was slightly above normal, being 2.45 inches, the mean for October being 2.17, .93 inches falling on October 24. There were 9 rainy days. A trace of snow fell October 24, with an inch or more, melting as it fell, coming October 30.

There were 18 clear days, 12 cloudy days and 1 partly cloudy, making the percentage of cloudiness above normal. The highest barometer was 29.45 on October 28, the lowest for the month being 28.52 on October 14.

### Egg Tests at K. S. A. C.

Mr. R. H. Shaw, assistant chemist of the Experiment Station at the Kansas State Agricultural College, assisted by Miss Gertrude Hole, of the senior class, is busy compiling the information just

obtained in the recent egg-laying contest at the College.

Six pure-bred hens of each of the following breeds participated: Plymouth Rock, American Red, White Wyandotte, White Leghorn. Each hen was confined for six weeks in a trap-nest, so that not only the number of eggs laid but the weight of each egg and the exact time of laying could be recorded. Each egg was then sub-

jected to complete analysis.

In the laboratory a separate record was kept of each hen's eggs and of each egg itself. The eggs were first measured for length By means of a special apparatus devised by Mr. Shaw, the resistance of the shell was then found, the object being to arrive at conclusions which will be of interest to packers. testing apparatus consisted of a beam, with a knife-edge pivot at one end and a scale-pan at the other, also resting on knife edges. At a point one-fifth of the distance from fulcrum to scale-pan is a crushing screw-point, adjustable in length to different sizes of eggs. Beneath the crushing point is a pedestal on which the egg A reservoir for shot has an outlet into an inclined trough, from which the shot drops into a receptacle resting on the scale-When sufficient shot has dropped into the receptacle to crush the egg, the descending beam brings a spring into action, which instantly shuts off the flow of shot. The receptacle is then removed and weighed. This weight, multiplied by five and added to weight of beam and scale-pan, represents crushing weight.

After this test was completed the eggs were boiled and the whites and yolks were separated and tested for fats, ash, and albumen. About 600 eggs have been treated in this manner.

The chief objects of the experiment were to determine the relative richness of light and dark eggs, also of light and dark yolks. Incidentally it will be ascertained which breed is the most prolific layer, which breed lays the richest eggs, and whether or not there are variations in the quality of eggs from the same hen or from hens of different breeds.

A separate test was made of the fat in eggs. Such an experiment has never before been performed. By means of an original apparatus, consisting of a perforated cylinder and a piston, Mr. Shaw has taken a total of about one pint of fats from 1000 eggs.

The eggs were first boiled, the yolks pulverized, and then dried at 100° C. The powdered mass was then placed in a sack and put into the cylinder, which had previously been heated to 100° C. When considerable of the heat had been absorbed by the yolks, the piston was inserted and several tons pressure applied. The fat comes through the perforations and is collected as a reddish oil.

It will take several months to arrange the data and secure definite information, but the results will be most interesting when secured. They will be published and issued as one of the regular

Experiment Station bulletins.

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# E. R. Nichols, President

Manhattan, -- Kansas

# INDUSTRIALIST

Vol. 32

No. 8

ISSUED WEEKLY BY

Kansas State Agricultural College Manhattan



PUBLISHED BY
PRINTING DEPARTMENT
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## THE INDUSTRIALIST.

HELDAY STATES A THOUSE

VOL. 32.

MANHATTAN, KAN., Nov. 13, 1905.

No. 8

### The Growth of the Dairy Industry.

\ /ARIOUS and diverse forms of dairying have been carried on from time immemorial. Milk has always been considered a very common article of food. Its products, as shown by history and Bible references, were discovered and used centuries ago, although in a very crude way. Genesis 18:8-"Abraham set butter and milk and dressed calf before his guests." Proverbs 30:33—"The churning of milk bringeth forth butter." Job 10:10 -"Hast thou not poured me out like milk and curdled me like cheese?" I Sam. 17:18—"And Jesse said to David his son, take now for thy brethren an ephah of this parched corn, and these ten loaves, and run to the camp of thy brethren and carry these ten cheeses unto the captain of their thousand, and look how thy brethren fare." When Rome ruled France, butter was used only as an ornament. When the French invaded that country, A. D. 418, they spread the knowledge of its food value. In the 17th century it sold there for 10 cents a pound.

In some countries the most primitive methods are still in vogue. For instance, in Zululand the natives suck the milk into their mouths and deposit it into pails for market. In Arabia butter is churned by beating with a stick a small quantity of milk in a leather bag. In several of the European countries, where goats' milk is used extensively, the goats are driven from house to house and the desired amount of milk drawn from one of the herd at the door of each customer.

Since milk has been so commonly used for generations, the preparation of its products has not been, until recently, considered as a science. In 1870 little was known about scientific dairying. The white-suited butter maker was not even dreamed of. Milk was milk, cream was cream, and butter was butter, without any frills. The only recommendation to milk was its color. As long as it was nearer the color of milk than water, it passed inspection. It was not known that the specific gravity of distilled water is 1.000, pure milk 1.029 to 1.033, and skim-milk 1.033 to 1.037, or that the temperature should be 60° F. in all cases to ob-

tain accurate results. It was supposed that fat globules contained acid that soured milk.

In the first crude creameries were placed conspicuously near the door, where patrons delivered their cream, milk-testing instruments, with a sign above "Don't handle." The butter maker occasionally looked wise and told his patrons that their milk was poor. Many farmers did not believe him to be as wise as he looked and kept their milk at home. This state of affairs existed only a few years, however, and to-day the homes of the masses have been relieved of the unpleasant and unprofitable labor of churning The modern creamery, the invention of cream on the farm. separators, the Babcock test, Pasteurization, tax on oleomargarine, and the Morrill laws have revolutionized the industry and made dairying a science. The following preparations made from milk make evident the fact that our modern dairy experts have gone deep into scientific research, although the industry is yet in its infancy:

1. Milk sugar, or lactose, is obtained by coagulating milk with The curd is then strained out and the whey boiled rennet or acid. to precipitate the albumen. The clear liquid is boiled to dryness, leaving the milk sugar in solid form.

2. Milk fat is composed of 75 per cent C (carbon), 12 per cent

O (oxygen), and 13 per cent H (hydrogen).

3. Twelve and five-tenths per cent of glycerin unites with 87.5 per cent of fatty acid to form fats. Fats, when boiled with alkali (the latter takes the place of glycerin), make soap. several buttermilk soap factories now in operation, and one is soon to be erected at Concordia, Kan.

- 4. Milk serum is obtained for medical purposes by rapid coagulation at 30° C., and the acid neutralized by soda and filtered in a Chamberlain's porcelain bougie. New Zealand dried milk has been recently substituted for tea in that country, and is highly recommended by medical authorities there. It is very similar to the milcflor or dried milk of Sweden, and is made in a similar way. The skim-milk is placed in a vacuum at 165° F. until it dries to a It is then dried to a crisp on wire screens and pulverized. One pound of milcflor contains as much protein as 1.8 pounds of beefsteak.
- 5. Solid material for making combs is manufactured from skim-milk coagulated by HCl in twenty parts of milk. It is cut in strips while warm, for it will then contract, washed in warm water, then in cold to rid it of sugar, dried and crushed, desiccated, and powdered. Mixed with drugs and chemicals, it turns

hard or petrifies. This celluloid-like material is incombustible, does not soften in water, and has no odor. It is used for combs, billiard balls, buttons, umbrella handles, etc., as a celluloid substitute. In alkaline solution it is employed in the manufacture of impermeable stuffs. It replaces albumen of eggs in manufacture of lace, and may be used instead of starch or dextrine in a number of ways. In photography it is used to enamel positive papers. It is used as glue, varnish, water color, lacquers, and for sizing paper.

6. The most enduring preservative in an inexpensive paint for barns and outbuildings is casein weather-proof cold-water paint, samples of which we have in the College Creamery. It is prepared by stirring into one gallon of milk three pounds of Portland cement and adding sufficient Venetian red paint powder to impart good color, but any other paint powder may do as well. The milk will hold paint in suspension, but the cement, being very heavy, will sink to the bottom, so that it becomes necessary to keep the mixture well stirred. Six hours after painting, this will be as immovable as old paint. "Buildings have been known to hold this paint for twenty years." Skim-milk is better than whole milk as it contains less oil, which prevents the setting of the cement. With the addition of carbolic acid it is also a disinfectant and may be used in the dairy and creamery.

7. Moscow sour cream, a Russian delicacy, is obtained by skimming thick cream and, after fermenting and thickening, adding fresh sour cream in proportion to two to five to induce fermentation. Keep at temperature of from 77° to 90° F. and it will ripen in six to ten hours. It must be taken into cooling room the moment souring begins. It is preserved by the lactic acid developed. When sufficiently ripe it is solid, and may be cut with a

knife.

8. Plasmon or caseon is the precipitate of casein with HCl neutralized with carbonate of soda.

9. Casein of lime is the precipitate dissolved by phosphoric acid

equal to quantity of lime used.

10. Nutrose is the dried casein and caustic acid boiled in alkali.

11. Santogene is about 95 per cent glycerophosphate of sodium, and about 5 per cent casein. The casein is precipitated with acetic acid. It is washed with methylic alcohol with 5 per cent glycerin, phosphate of sodium, and dried slowly.

12. Eucaseine is ammonical casein, obtained by passing am-

monia through the emulsion of alkalized casein.

13. Galactogen is casein prepared by adding potash and salt.

14. Eulactol is obtained by adding proteic vegetable substance

made soluble, and hydrates of carbon, salts, such as phosphate of calcium, cooking salt, carbonate of sodium, and then allowing the mixture to vaporize.

15. Albumine "nikol" is obtained from the precipitate of sterilized whey, and by dissolving the precipitate in soda again and rendering soluble by treating successively with HCl and alkaline.

16. Hygiene albumine "nikol" is a mixture of albumine "nikol" with a preparation of ox blood, containing an organic combination of iron, and destined for people suffering from chlorosis.

17. Solid milk is prepared by adding one per cent of liquid gelatine. This readily solidifies the milk on cooling, and it may be marketed in brick form.

Professor Muller, of Balena, Newfoundland, claims to have domesticated several female whales and obtained enormous quantities of whale milk from them. This, however, sounds like a "whaler."

Butter sausage is packed in paraffined cloth bags, holding one, three, or five pounds, automatically weighed, stuffed, and sealed, without contact to air. They are oil and moisture proof.

The following is a list of the different kinds of cheese:

#### SOFT CHEESE.

Fromage blane (white choose)	
Fromage blanc (white cheese)	France
Mascarporie cheese Fromaggio fresco di Pecora cheese	Italy
Bondou cheese Limburger cheese	France
Romatour cheese Fromage de Marseilles cheese	Bayania
Pout-L'Eveque cheese	France
Void cheese	France
Brie cheese Camembert cheese Neuf-chatel cheese	France
Bellelay cheese	Switzerland
Brick cheese	America
Cottage cheese	
HADD GUIDEGE	
Cheddar cheese	17. 1 1
Roquefort cheese	England
Stilton cheese	France
Gorgowgola cheese	England
Gex cheese	Italy

Blue Dorset cheese	England
Emmenthaler cheese	Switzerland
Gruvere cheese	France
Schweitzer cheese	Switzerland
Danish Export cheese	Switzerland
Edam cheese	Holland
Pineapple cheese	U. S. ·
Gouda cheese	Holland
Cacio cavallo cheese	Italy .
Whey cheese	Norway
Blundeer cheese	Norway
Old (Norwegian) cheese	Norway
Schabzieger (Sap Sago) cheese	Switzerland
Zieger cheese	Switzerland

Modern dairying, more than any other form of commercial activity, adds to the wealth of the nation. From the cow we obtain milk, cream, cheese, butter, and materials for cream biscuit, ice cream, milk-shake, custard pie, Kansas Ambrosia, horn combs, leather shoes, hair for plaster, hoof glue, ox-tail soup, dried blood, blood for whitening sugar, ground bones for fertilizers, rennet for cheese and material for whitening card-board, which can be made into false teeth. No other animal works both day and night like the dairy cow. She gathers food during the day and manufactures it into milk during the night. She is the mother of all her own kind, and foster mother of about half of the human kind.

There are thirty dairy states in the United States, 320,000 exclusive dairy farms, and 3,600,000 farms where some dairying is done. Thirty million people are employed in handling dairy products and there are 1,200,000,000 pounds of butter produced in the United States annually. Almost every citizen of this nation is a consumer of dairy products in some form.

But it remained for the dairy scientist to transform the crude, unsanitary business into a hygienic, profitable industry. To do this he replaced wooden floors with cement, both in the creameries and dairy barns; secured control of noxious and desirable forms of bacteria and their enzymes; learned to control milk fever and other diseases of cattle; used sterilized, filtered water, of which our College Creamery is foremost; instituted proper drainage; learned to utilize dairy by-products; invented sanitary, laborsaving milking machines; combined churns and butter workers; raised the standard of butter, cheese, and certified milk; used paraffin for packing dairy products; adopted the Wisconsin curd test, the lactometer and modern dairy machinery, and last but not least improved the dairy breeds of cattle one hundred per cent.

Cleanliness and care in handling milk has been employed to a very great extent. For instance, samples of milk obtained from the dairy of H. B. Gurler, De Kalb, Ill., were sent to the Paris Exposition in 1900, and after being in transit from August 29 to September 15, it remained sweet three days after arriving in Paris without the use of any preservative.

So with the help of these means our modern dairy cows have been developed from nurses of their young to the greatest food producers for the human race, and dairying has advanced from unsanitary, unprofitable drudgery to a recognized science and a model business which encourages cleanliness, neatness and industrious habits.

CHAS. W. MELICK.

### Alumni and Former Students.

Cara (Secrest) Hungerford, '85, of Randolph, visited the College last week in the company of Miss Nellie Elliott.

Miss Daisy Hoffman, '00, and Miss Olivia Staatz, special student '00, came from Enterprise and visited friends in town and about the College last week.

Mr. and Mrs. Frank C. Lockwood, of Meadville, Penn., announce the birth of a daughter, Elizabeth Pritner Lockwood, on October 27.—Nationalist. Mrs. Lockwood will be remembered as Miss Mary Bly Pritner, '99, assistant in domestic science here for several years.

The invitations are out for the marriage of Miss Olivia M. Staatz and Mr. D. R. Reimold. The wedding will take place November 16, at the home of the bride at Enterprise. Miss Staatz was formerly an assistant in the Domestic Science Department of the College.—Nationalist.

Eli A. Helmick, third-year student in 1883, graduate of the West Point Military Academy, 1888, and captain tenth infantry, United States Army, has an interesting article in Leslie's Weekly for October 5 on the "Causes of Desertion from the Army." The captain does not think that the difference in the social position of officers and men has anything to do with desertion. He thinks that the bulk of the deserters consists of youngsters who enlisted in anticipation of an easy berth of careless inactivity, and upon finding that it means three years of hard work they abandon it. The opportunities for advancement from the ranks are treated as inducements to remain in the army and do good work that partially offset the inadquate pay of thirteen dollars per month.

Arrangements have been completed for a farmers' institute at Garnett. The date will be published later.

## THE INDUSTRIALIST

Published weekly during the College year by the Printing Department of the

### Kansas State Agricultural College

Manhatian, Kansas,

PRES. E. R. NICHOLS	Editor-in-Chief
PROF. J. D. WALTERS	Local Editor
PROF I T WILLARD	Alumni Editor

### BOARD OF REGENTS

### Local Notes.

Captain Shaffer went to Fort Riley last Sunday.

The Haskell Indians will play the College team at the Manhattan field next Wednesday afternoon.

Professor Valley has been invited to sing a bass solo before the Kansas State Teachers' Association, at their holiday session.

The basket-ball club of the Faculty has been revived and has commenced regular work once a week in the Women's Gymnasium.

The Architectural Club had a meeting at the City Library last Saturday night and enjoyed a sciopticon lantern exhibition of the Alhambra, given by Professor Walters.

Student assistant Elsie Waters has been elected teacher in one of the grades of Tenth street school in Junction City. She left for her new position on Saturday.

H. G. McCormick, brother of Prof. E. B. McCormick, will locate in Manhattan in the near future. He will hang out his shingle at the Union National Bank building, as a dentist.—Students' Herald.

Librarian Margaret Minis was in Leavenworth Friday of last week, where she gave an address on "Bibliography and Reference Work" at the annual meeting of the Kansas State Library Association.

The term social of the freshman class will be held on Monday, the 13th, notwithstanding that day is marked in the lucky day calendar as a particularly mean time for forming friendship and starting love affairs. Better take care, young folks!

Professor Erf and Assistant Elling are absent on an extended farmers' institute series. Last week they spoke at Ellsworth, Russell, Grainfield, Hoxie, and Hill City. This week they will hold institutes at Plainville, Waldo, Prescot, and Glendale.

The College was thronged with visitors nearly every day during the past week. The fine fall weather, the beautiful foliage of the campus, the military drills and the band rehearsals have coöperated in giving the visitors unusual opportunities for delightful outings.

Wesley Fryhofer, who went to Ames, Iowa, a few weeks ago to take a special course in dairying in the Iowa State College, has secured a position as teacher in dairying in the Massachusetts Agricultural College, at Amherst, Mass., for the winter term.—
Randolph Enterprise.

Arrangements have been completed for a series of farmers' institutes down below Wichita. The dates will be as follows: Hackney, December 6 and 7; Rome, December 8; Caldwell, December 9; Anthony, December 11 and 12. Professor Ten Eyck will be one of the College delegates. The other members of the party have not been definitely selected.

The football game played by Fairmount (Wichita) and the Agricultural College last Monday afternoon resulted in a score of 11 to 6 in favor of our boys. In the evening the Rooters' Club gave a reception in Kedzie Hall in honor of the visiting club. An excellent musical program was given and choice refreshments were served. The toasts by Coaches Ahearn and Betts and others furnished much amusement.

The wheat and corn special train over the Rock Island railroad lines started last Monday from Caldwell, as advertised, with President Nichols and Professors J. T. Willard, A. M. Ten Eyck, and Assistant Professor Shoesmith on board. It visited eighty-two towns in seven days, as advertised in the Industrialist two weeks ago. President Nichols left the party and returned to Manhattan on Friday. We have not at this writing complete information as to the success of the venture, but shall report next week.

Assistant Professor Potter, of the Department of Mechanical Engineering, has been asked to lecture before the Manhattan Domestic Science Club on "Student Life in Russia." The lecture will be given in Carnegie Library in the afternoon of November 16. The professor was a student in the old Russian town of Kief for several years and is the son of a Russian civil engineer who did extensive work in bridge building for the Russian government. His lecture will be a treat for the ladies of the club and their invited guests.

The Missouri Pacific series of farmers' institutes began last week, as advertised in a former number of the Industrialist, with Professors Popenoe, Dickens and Assistant Wheeler as delegates from this College. Wheeler left the party at El Dorado to hold institutes at Altamount and Oswego. From Oswego, where he will speak on Monday, he will go to Moran, where he will rejoin the other party and assist on November 14 in an institute at that place. From there they will go to Fort Scott, where they will talk to the farmers on the 15th. Professor Popenoe will leave the party at Iola.

The resident Alpha Beta alumui of Manhattan have organized and will meet monthly hereafter. They plan to establish a regular headquarters, employ a secretary, and include all A. B. alumni in the membership. The first meeting was held in October. F. L. Jones, '96, of Kansas City, sang a solo and J. T. Willard, '83, gave a thirty-minute talk on London. Emma (Knostman) Huse, '80, will give an address on Russia at the November meeting. The officers are, F. A. Marlatt, '87, president; Marian Allen, '04, vice-president; A. E. Ridenour, '96, treasurer; Josephine Finly, '00, secretary.—Students' Herald.

The Students' Herald takes time to muse over the fact that the members of the Faculty are not as regular in their attendance at chapel exercises as they wish the students to be. It figures out that on a certain week in October the per cent of attendance was only a fraction over 23, but it does not account for the fact that large numbers of the assistants have work in the laboratories that prohibits them from attending; that many teachers are absent in order to prepare experimental work; that many are absent from College doing institute or lecture work, etc. We feel on "our side of the house" that "comparisons are odious," indeed.

A special farmers' institute train will visit the towns along the Central Branch of the Missouri Pacific railroad, under the auspices of the Kansas State Agricultural College, and hold poultry institutes as follows: Lenora, December 4; Marvin or Kirwin, December 5; Gaylord, December 6; Beloit, December 7; Mankato, December 8; Jamestown, December 9; Clyde, December 11; Washington or Greenleaf, December 12; Blue Rapids, December 13; Goff, December 14; Whiting or Vermillion, December 15; Effingham, December 16. The delegation from this College will be headed by Prof. Oscar Erf. Mr. W. W. Marple, of the Blue Valley Creamery Company, will accompany the party and deliver addresses.

The professors and instructors met last Wednesday and Thursday afternoons in solemn conclave to consider the long list of low grades of the mid-term examination. In most cases the verdict was a simple one. The vote stood, "Go on but work harder and use your time more economically." There were other cases, however, that required more severe treatment. A number of students were ordered to drop studies or to drop to lower work, and a few were advised to "go home and help father husk the corn crop." There are young men who do not know how to use time to advantage and need a "boss" to accomplish something. The College is no place for such people—it is not a reform school. It can not be expected to accomplish what the parents have neglected to do.

At a meeting of the Regents of the Kansas State Agricultural College held Saturday, November 4, the contract for the new Horticultural Hall was let to Stingley Bros., of Manhattan. The figure named was \$35,380. The contract calls for September 1, 1906, as the date of completion. The building will be at the north end of the crescent of buildings east of Dairy Hall, facing south. The basement and first floor will be used by the Horticultural Department, the second floor by the Botanical Department. New greenhouses costing \$10,000 will be constructed later. It is probable that the old Horticultural Hall and greenhouses will be dismantled, if it is found that the rooms the buildings contain can be spared. No action was taken for the present. If this is done, the square between Mechanics Hall, Physical Science Hall and Agricultural Hall will be converted into one of the most beautiful spots on the campus.

### Press Notices.

Twenty-two varieties of spring barley have been tested in comparative trial at Manhattan during the past three seasons. varieties giving the highest average yields are as follows: Common Six-rowed, 35.8 bushels; Bonanza, 34.4 bushels; Mansury, 34.1 bushels; Mandscheuri, 32.2 bushels; and Success Beardless, 31.5 bushels per acre, respectively.

## Oiled Road at Manhattan.

The experimental oiled road at Manhattan is nearing completion. It runs from the Lover's Lane entrance of the Kansas State Agricultural College south to the city park. The work is under the direction of Prof. Albert Dickens, of the College.

The road was first graded to eighteen inches high in the center, with wide gutters and plenty of water outlet provided. The heavy black soil was then loosened to a depth of four inches at the surface and pulverized thoroughly with disc and harrow.

inch layer of the coarsest grit obtainable was spread on the top. This was obtained from the Strong banks, east of Manhattan, on the Blue river. One hundred twenty-four loads were used.

The oil used is residuum, or crude petroleum with the gasoline and kerosene removed. It comes from Uncle Sam's refinery at Cherryvale, and the first lot was shipped in tank cars. Later shipments will come in iron barrels. It was so thick that it was found difficult to pump it from the tanks. For the same reason it would not run through an ordinary street sprinkler. A special apparatus was made to distribute it over the roads, consisting of a four-inch gas pipe attached at the base of the rear of the sprinkler, to which was connected a cross-piece of the same diameter, twelve feet long and having three-eighths inch holes one and one-half inches apart.

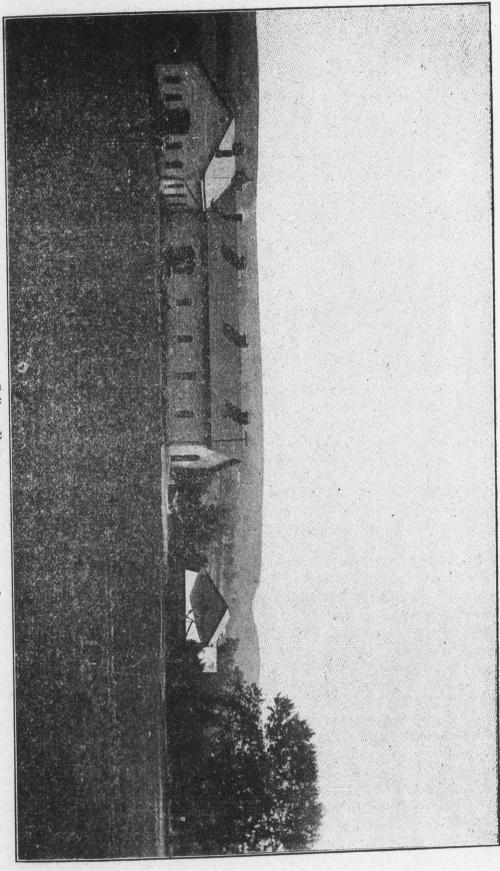
Three applications of the oil were made, and it was thoroughly mixed with the twenty-five per cent sandy soil by harrowing each time. The road will next be thoroughly packed with a steam roller, and teams kept off till the surface hardens, which requires

about a week.

Professor Dickens is anxious to complete this section of the road, because so far no oil road has been tested in a heavy freezing climate. It is probable the road will need more oiling and rolling

after freezing.

At Hutchinson, four thousand gallons of residuum were used, the road being one-fourth mile long and thirty-two feet wide. The oil penetrated from six to eight inches below the surface, and the road was thoroughly hard to about five inches. No heavy traffic was permitted, but buggy-wheels scarcely made an impression. No dust was visible after the first application of oil, though a strong wind was blowing. The road drains the rain off easily, and does not soften. Professor Dickens says it will be a fine success.



College Barn.

### Shrinkage in Cribbed Corn.

Experiments to determine the shrinkage of corn after cribbing are being conducted by the Agriculture Department at the Kansas State Agricultural College. The experiment has really been in progress for two years past, but has not been sufficiently conclusive, hence the work is being repeated. The data shows some gain at times, but the increase is not so great during the winter as is generally supposed, if put into the crib reasonably dry.

### Progress at Dairy Hall.

A new steam turbine cream separator has been installed in Dairy Hall at the Kansas State Agricultural College. The Dairy Husbandry Department now owns fourteen different kinds of separators, most of which have been donated by the manufacturers. They are run by steam, hand, and belt, also by means of adjustable foot-power machine, which may be used on any separator.

Over thirty-five regular students are now putting in twelve hours per week each, not counting outside studying, in practical farm dairying and factory creamery work, including such things as butter and cheese making, cream testing, milk acidity tests, in making pure cultures from lactic acid ferment, in pasteurization, and in practical dairy plumbing and machine repairing.

An equal number of short-course men spent twenty-four hours per week during twelve weeks last winter in the same work. These men had little difficulty in securing positions averaging \$50 per month. Many were sent for by various creameries, even before they had finished their studies.

Another evidence of progress in the department is to be seen in the dairy barn, which has recently been thoroughly cleaned and scrubbed. Shoe scrapers have been placed at the doors, and a hundred feet of hose will reach every nook and cranny, to administer a thorough washing after each milking. Plenty of fresh air and sunshine are being admitted to help rout the lurking bacteria, and the atmosphere is pure and sweet. The apparatus is being cleansed with hot water and steam, and sanitary milk is now a reality.

Some additional dairy stock will soon be purchased.

## Secured Some Fine Specimens.

Mr. Theo. H. Scheffer, assistant in zoölogy at the Kansas State Agricultural College, and C. H. Popenoe, a 1905 graduate, have returned from a two weeks' collecting trip in what is known as the Austroriparian fauna, in Southern Kansas. Most of the time was spent on the ranch of C. S. Marty, in Barber county. Quite a number of valuable specimens were secured for the zoölogical display in the museum, among them a spotted wild cat, probably Lynx rufus maculata, a badger, two specimens each of two species of skunk; a number of species of wood rats (Neotoma), which are regarded as good captives in that they are vastly different in color and general characteristics from those around Manhattan. Other additions were a large number of kangaroo rats, field mice,

hawks and owls; twenty bats, two of which represent species not before recorded in Kansas. One of these is a peculiar long-eared specimen (Corynorhynus macrotis), these appendages being more than an inch in length, the color a light brown. Three black-eared jack-rabbits (lepus melanotis) and several specimens of a lutescent form of pocket-gopher were secured. Altogether nearly one hundred skins were captured.

Messrs. Scheffer and Popenoe also brought back sapling trees and their fruit, one the Southern Buckthorn (bumelia lycioides), the other the Soapberry or Wild China-tree (sapindus marginatus), both of which have been much desired by the Botanical De-

partment at the College.

Several gypsum caves were explored and measurements and flash-light views taken of interior chambers. A box of good geological specimens, chiefly gypsum stalactites, was brought back. Photographs were also taken of gypsum bluffs and one of a natural bridge across Bear creek canyon, on the Marty ranch; also one of Hell's Half-acre, on the Robinson ranch, in Comanche county.

Another trip will be made about May 1, to the same region, to secure birds in their season of migration and nesting, and also for

insect specimens.

## Trouble With Horses Caused by an Internal Parasite.

The State Veterinarian reports several outbreaks of a trouble in horses, in different parts of the State, which were caused by parasites described as the Palisade Worm (Strongylus armatus). Each outbreak has caused a loss to the owner of nearly a thousand dollars' worth of horses. From the fact that the trouble does not always manifest itself in the same way, it frequently puzzles the

local veterinarian for some time.

This worm may be found in any part of the body. Its natural habitat, however, when full grown, is in the intestinal canal, usually the large bowel. In its immature state it migrates into the blood vessels, sometimes causing rupture of a large vessel or an obstruction of the flow of blood, and in this way has lodged in the arteries of the brain, causing the animal to show brain trouble. Again, it has obstructed an artery leading to a portion of the intestine, causing some of the most serious cases of colic, impaction, paralysis of the bowel, and frequently death. Being located in different parts of the body, attacking different organs, accounts for the different symptoms in different horses.

The life history of this little worm is very interesting: It passes the greater portion of its life in the intestine of the horse; a part of it, possibly, in the arteries; another portion in the outer world. Here it may be found in stagnant water, in meadows, in any damp place. If there is sufficient moisture present, and the temperature is not too cold, it may live for months. In dry weather, or in absence of sufficient moisture, the parasite soon loses its vitality and dies. The source of infection in the horse, it may therefore be seen, is stagnant drinking water, moist pastures or green fodder. The Veterinary Department of the Kansas State Agricultural College expects to publish a bulletin on the subject soon.

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Manhattan, -- Kansas

# INDUSTRIALIST

Vol. 32

No. 9

ISSUED WEEKLY BY

Kansas State Agricultural College
 Manhattan



PUBLISHED BY
PRINTING DEPARTMENT
J. D. RICKMAN, Supt.

Entered at post-office, Manhattan, Kan., as second-class matter. Act of July 16, 1894.

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## THE INDUSTRIALIST.

VOL. 32.

MANHATTAN, KAN., Nov. 20, 1905.

No. 9

### The First Farmers' Institutes.

UPON the request of Mr. John Hamilton, farmers' institute specialist of the United States Department of Agriculture, an investigation was made concerning the history of the farmers' institute movement in this State, and part of the results of this work will be presented in this and one or two later articles.

In addition to the main consideration, the writer has found the history and records of these early institutes of great interest because of the glimpses that they give of the early history of the College, and of the social and intellectual life of the pioneer settlers. This is seen to be of a high order, and the journalism of the time compares most favorably with that of the present.

In beginning inquiry concerning the farmers' institute movement in this State Mr. Washington Marlatt was consulted, he being one of the earliest settlers and one of the founders of Bluemont College which later was donated to the State and became the State Agricultural College. He was a prominent participant in much that concerned the Agricultural College in its early days. Mr. Marlatt stated that the farmers' institutes were suggested by Rev. Elbridge Gale, at that time one of the Regents of the College and later professor of horticulture therein. He also stated that reports of the early institutes were published in one of the Man-The writer wishes at this place to acknowledge hattan papers. his great obligation to Mr. Marlatt for the clues thus given for further information. Happily Mr. Gale is still living, spending the declining years of a serene old age in the mild climate of Florida, and to him the following letter of inquiry was addressed:

I have been requested to prepare a history of the farmers' institute work in this State. Mr. Marlatt gives you much credit for the initiation of this work in connection with the College. Will you kindly write, as fully as your time and strength will permit, such details as you recall concerning the inception of this work? Please state, also, whether it was original with the College or yourself as far as you know, or adopted from some other institution or state.

The following letter was received in reply:

I am glad to hear that you have been called upon to prepare a history of the farmers' institute work in Kansas. For special reasons I have watched

the development of this institute work with constant and ever-increasing interest. You asked for my recollections of the beginning of this work. I have now no access to dates; perhaps Mr. Marlatt or Mr. T. C. Wells can help you to these, or possibly you can turn back to the records of the Regents' meetings at that early date as kept by the Secretary of the Board, Dr. Denison, for a record of the beginning of farmers' institute work. How fully those records were kept I have no means of knowing, but I think them to have been carefully and correctly kept. As far as I know I am the only living member of the Board present at that meeting. The facts in the matter are simply these:

The Board of Regents were holding a meeting one afternoon in the President's room at the old College on the Hill. The Governor, ex officio chairman of the Board, was unable to be present. After some routine work the question of "ways and means" came up (and there was a great deal of that question in those days when it was frequently quite uncertain whether we had a College at Manhattan or not) and the matter of interesting the farmers in the College came up in a general way. After a somewhat scattering talk, I remarked that I had just been reading an account of a ministerial institute, and had been much interested in the report. 'And now,' I remarked, 'I see no reason why that institute idea may not be adopted in the interest of farmers.' The idea seemed to have caught the attention of the members present, but it was so entirely new that no one seemed ready to take the initiative. Acting that day as chairman of the Board, I did not wish to press the matter, and so it was dropped for that session. evening session I talked the matter over privately with Dr. Reynolds, and it was partially agreed that he was to present the matter; and he finally did, in the form of a resolution authorizing the Faculty of the College to commence institute work, first at the College and then at any other points where the cooperation of the farmers could be secured. The first meeting under the authority of this action was held at the College, and the second very soon after at Wabaunsee. It was found at the very first that it was easy to secure the earnest and intelligent co-operation of the farmers, the work being limited only by the strength of the Faculty to initiate it. This is the record of the first farmers' institute. In a few days our action was headlined by the daily press of the east something like this: "They are holding farmers' institutes out in Kansas. Why not?" The whole thing was new to us; it was new to everybody. And if there is anything that the Kansas Agricultural College can claim as legitimately her own it is the creation of the farmers' institute.

Acting upon Professor Gale's suggestion, the early records of the Board of Regents have been looked through and they show that a meeting was held June 23, 1868, which, in the absence of the Governor, was called to order by the vice-president, E. Gale. After transacting certain items of business an adjournment was taken until two o'clock P. M. On reassembling Rev. Chas. Reynolds presented the following resolutions, which were upon motion adopted:

WHEREAS it is incumbent on the Regents not only to provide for the wellbeing of the College by selecting learned and practical teachers for the several chairs, but also to extend the benefits of the institution to the people of the State at large, therefore:

Resolved, That the President and Professors be requested, as far as practicable, having in consideration their own health and usefulness in their respective chairs, to visit the more populous settlements of the State, and by free converse as well as by formal lectures, make known the character and aims of the State Agricultural College.

Resolved, That the President of the College be requested to superintend this outside work, and so to divide it among the whole Faculty that it may

be burdensome to none but profitable and healthgiving to all.

Hon. G. W. Glick was requested to meet with the Board, who appeared and offered the following resolution, which was adopted unanimously:

Resolved, That a system of lecturing on agricultural subjects at this College and in populous settlements of the several counties of the State should be continued, so that the benefits of farming according to correct agricultural principles may be disseminated throughout the State.

Hon. G. W. Glick was a member of the Board of Visitors. 1882 he was elected governor of the State, serving for two years in that capacity. It is pleasant to note that the warm interest which Governor Glick has always shown in the progress of agriculture in this State was thus early manifested in the initial steps

for the inauguration of farmers' institutes.

Previous to writing to Professor Gale the writer followed up the other clue suggested by Mr. Marlatt and consulted early files of the Manhattan papers preserved in the collections of the State The accounts of the early institutes were Historical Society. found, and on tracing them back to their origin it appeared that this might be credited to the Union Agricultural Society. As recorded in the Manhattan Independent for June 13, 1868, this society was organized June 6, 1868, its officers being: President, Prof. J. S. Hougham; vice-president, Elbridge Gale; secretary, R. D. Parker, and treasurer, Welcome Wells. Directors: C. B. Lines, Wabaunsee county; Samuel Cutter, Riley county; Orville Huntress, Clay county. The society planned to meet on the second Saturday of each month, and its object was stated as follows: "The object of this society shall be to promote by exhibitions and by exchange of opinions and experiences the pursuit of horticulture, agriculture, and arboriculture." In the Manhattan Standard for September 19, 1868, a report was printed of the meeting held September 12, and in its issue for October 31, 1868, the following items appeared:

Agricultural Institute.—It is proposed to hold an Agricultural Institute in connection with the Horticultural Society on Saturday, the 14th of Novem-

Further particulars next week.

Horticultural Society.—The regular meeting of this society will occur on the second Saturday (14th day) of November, in the usual place. The subject for discussion will be 'Borers.'

The following notice appeared in the issue of the Manhattan

Standard for November 7, 1868, and was reprinted November 14, 1868:

### FARMERS' INSTITUTE.

Arrangements have been made to hold a farmers' institute in connection with the next regular meeting of the Union Agricultural Association. The exercises will occur at the County Hall, in Manhattan, November 14th, 1868, as follows:

Ten o'clock A. M., address by Pres. J. Denison; subject, Relations of the Kansas State Agricultural College to the agricultural interests of Kansas.

Eleven o'clock A. M., address by Prof. B. F. Mudge; subject, Tree Borers. One o'clock P. M., address by Rev. E. Gale; subject, Culture of Forest Trees.

Two o'clock P. M., address by Prof. J. S. Hougham; subject, Economy on the Farm.

A short time between the addresses will be allotted to a general discussion of the leading topics. A general attendance of both ladies and gentlemen is respectfully solicited.

John S. Hougham,

Pres. Union Ag'l Society.

R. D. PARKER, Secretary.

The following notice appeared in the Manhattan Standard for November 14, 1868:

### INSTITUTE AT WABAUNSEE.

There will be an agricultural institute at Wabaunsee on Friday evening and Saturday morning, 20th and 21st insts. Lectures may be expected from Pres. J. Denison, Professors Mudge and Hougham, Hon. C. B. Lines, and others. All persons interested are invited to attend.

Concerning the institute held at Manhattan the Standard gives the following in its issue for November 21, 1868:

PERSONAL.—Hon. Geo. T. Anthony, editor of the Kansas Farmer, looked in upon us last Saturday. He was here on a visit to his son, Master George Anthony, a student of the Agricultural College, but he also made it convenient to be present at the institute and say some good things there. Captain Anthony is a live man, and makes a good Farmer.

An unusual press of business kept us from the interesting agricultural institute on Saturday last. There was a good attendance, we are told, and many matters of interest were discussed. The Secretary has failed to furnish a report of the proceedings in time for this week's issue.

Concerning the institute at Wabaunsee, situated about twelve miles east of Manhattan, the same paper contained the following paragraphs in its issue for November 28.

### WABAUNSEE AGRICULTURAL INSTITUTE.

The report of the Agricultural Institute held at Wabaunsee last week, prepared for our columns, has not come to hand. We can only say that we hear the institute spoken of as a very successful gathering. There was a large attendance, and the interest of the farmers was manifest. Several topics of practical value were discussed, and altogether this second of the series of institutes inaugurated by the Faculty of the Agricultural College was a decided success.

A belated account of the institute held at Manhattan appeared

in the Manhattan Standard for December 5, 1868, and is as follows:

FARMERS' INSTITUTE.

The Union Agricultural Society met in the County Hall. Manhattan, November 14, 1868, at 10 A. M., and was called to order by the President, Professor Hougham, and opened with prayer by Rev. R. D. Parker.

The first business was an address by President Denison of the Agricultural College. His theme, "The Relation of the College to the Agricultural Interests of the State," was carefully and skillfully developed. Much valuable history of the origin and endowment of industrial schools was given, and their vital relation to the welfare of the State clearly shown. The address was replete with scientific facts and practical hints, and we hope it may appear in print.

It was followed by an interesting discussion upon topics suggested by the address, Messrs. Platt, Denison, Gove, Gale, Pierce, Marlatt and Par-

rish participating.

The discussion was followed by a lecture from Professor Mudge on "Tree Borers," showing there were over one hundred varieties now known in this country, and tracing the most destructive through their varied forms of existence, and making known the time and manner of waging war upon them if we would save our fruit. In this an ounce of prevention is worth a pound of cure. This lecture was illustrated by specimens of the insects and sections of trees destroyed by them.

The Professor acknowledges his indebtedness, for two beautiful cases of insects that he exhibited, to Mrs. Thomas C. Wells, who has a splendid collection of over three hundred varieties well worthy of the attention of all

lovers of nature.

This lecture was followed by a brief but spirited discussion, Messrs. Gove, Pierce, Platt, Denison and Marlatt taking part. The society then took a recess until 2 P. M.

In the afternoon the first exercise was a carefully prepared and thoroughly practical address by Rev. Mr. Gale, on "Forest Tree Culture" illustrated by sections of various kinds of trees grown here, showing that a great variety of forest trees may be successfully grown, and what varieties are most valuable, both for windbreak and timber. He also discussed the treatment and planting of seed and the manner of cultivating, and stated some startling facts of the profit of tree planting. Messrs. Mudge, Marlatt and Little followed in brief speeches stating many important and interesting facts.

Geo. T. Anthony, editor of the Kansas Farmer, being present, was called up and made one of those finished and magnetic speeches which so few men know how to make. It was packed so full of humor, fact and argument that the reporter forgot his pencil. I wish that all the farmers of Western Kansas could have heard it.

Professor Hougham followed with a pointed and pithy lecture on the "Economy of the Farm." If its lessons could be heard and heeded many thousands of dollars could be saved by our farmers.

And thus closed a meeting of great interest and value, the only regret being that more were not profited by its teachings.

The next meeting of the society will be held on Saturday, December 12, R. D. PARKER, Secretary. Subject, "Small Fruits."

An account of this institute appeared in the Kansas Farmer for December, 1868, then edited by Geo. T. Anthony, afterwards governor of the State:

### AGRICULTURAL INSTITUTE.

All understand the object and workings of teachers' institutes, which have been and are still being held all over the country. They are simply the assembling of many teachers for the purpose of interchanging views and comparing experiences in their profession.

The practical and good results of these institutes are to be seen in every schoolhouse in the land, and felt in a grand impulse given by them to popular education. It is not strange, then, that other professions should adopt the same means of making common property of the individual experience of each one engaged in them.

The idea of agricultural institutes is, we believe, original with the President and Professors of our State Agricultural College. The initial step in this enterprise was taken Saturday, November 14 ult., by the holding of an institute in the court-house at Manhattan, under the auspices of the Riley County Agricultural Society, of which Prof. J. S. Hougham, of the College, is president.

The occasion being one of both novelty and interest—we were glad to be present and make note of the proceedings. The program as given in the Standard, in advance, was carried out to the letter. It consisted of short addresses by persons selected, interspersed with discussion upon the subject of agriculture, in any of its branches that might be called up.

President Denison, of the Agricultural College, delivered the first address. He said, in view of the small beginning of this enterprise, that we must take courage from the fact that "Great oaks from little acorns grow." He believed there existed a demand for such concert of action among the tillers of the soil as would be afforded by the system of agricultural institutes there and then inaugurated. It was one of the means to be used in making available the scientific and practical results of our agricultural College. He proposed to show the relations of this College to the public, and the beneficent results of its successful conduct.

Then follows one and one-half columns summarizing President Denison's further remarks.

Continuing the Farmer says:

We have not space, nor could we from our crude notes do justice to the clear, practical and hopeful words of President Denison.

After the address of Mr. Denison a pleasant discussion was indulged in. The secretary read a letter from the editor of the *Journal of Agriculture*, commending the enterprise of agricultural institutes. He had seen the announcement in the Manhattan *Standard* and was delighted with the idea.

The editor then continues his account of the institute, devoting in all eight columns to it, and concludes thus:

We have yielded this unusual space to the proceedings and addresses of this institute for the very good reason that they are worthy of it, and for a consideration still more important that it may be taken as an example to be followed by every agricultural society and neighborhood in the State.

J. T. WILLARD.

### The Corn and Wheat Train.

The Kansas City Star, in its Kansas columns, publishes the following account of the "corn and wheat train" of the Agricultural College, as seen by the reporter at Abilene on November 14:

"Kansas is not raising half as much corn and wheat to the acre as it should," says E. R. Nichols, President of the State Agricultural College, in charge of the State's first corn and wheat special train. With three assistants, Prof. J. T. Willard, Prof. A. M. Ten Eyck, and Asst. Prof. V. M. Shoesmith, he is making a trip over the Rock Island lines, stopping a half-hour at every station.

"We hope to show the farmers how they can get more money out of their land—though they are doing pretty well now. We started at Caldwell, November 6, and will end Saturday night, November 18, after having talked to more than 12,000 farmers on the best methods of raising corn and wheat."

Only one man thus far has found fault. He lives in Peabody. He asked: "How much is this fancy, kid-gloved farming train costing the taxpayers?" The fact is that the Chicago, Rock Island & Pacific railroad pays the bill.

### WHEAT IS THE FAVORITE.

It is curious to note the larger number of attendants at the wheat lectures. Twice as many hearers are in the wheat car as in the corn car. "They are generally very much interested," said President Nichols. "Kansas is stirred up on scientific farming. Up in Norton county the county high school teaches agriculture. We have thousands of farmers on our bulletin mailing list, and requests increase each year."

"Kansas is making a very poor record as a wheat raising state," added Professor TenEyck, the expert who lectures on wheat raising. "The average yield of wheat in Kansas for the last ten years, 1895-1904, has been only 13.1 bushels to the acre. The possible wheat crop of Kansas is much greater than the actual crop. This season at the College we harvested and threshed more than fifty bushels of wheat from one acre of land, and reports have come to me of even larger yields on some farms in Central Kansas, and yet the average yield of wheat in the State in 1905, as given by Secretary Coburn, is only fourteen bushels to the acre.

### SHOULD AVERAGE TWENTY BUSHELS.

"It may not be possible to grow average crops of fifty bushels, nor even forty or thirty bushels to the acre, but I firmly believe that, by growing better producing varieties of well-bred wheat and practicing reasonably good culture, the average wheat yield of

Kansas for the next ten years may be made to reach twenty bushels to the acre, or fifty per cent greater production than in the preceding ten years."

For thirty minutes he explained how wheat can be improved and told how the best results may be secured from the land. "Wheat cannot be grown continuously on the same land without exhausting the fertility of the soil for the production of this crop, but by a proper rotation of crops in which humus and nitrogen taken out by the grains are restored again in the growing of annual legumes, grasses, alfalfa, and clover, with the return to the land of the manure made by feeding to stock on the farm the coarse fodder and a part of the grain produced, it is possible to maintain the fertility of our soil and continue to produce large crops of wheat.

TESTS BY FARMERS THEMSELVES.

"In order that the testing of varieties by experiment stations may become of permanent value to farmers, seed selections and propagation must go on with variety testing, and this work is being undertaken at the several Kansas Stations. hundred bushels of seed-wheat of the best producing varieties were sold and distributed among the farmers of the State by these Stations this fall, and more than five hundred acres of winter wheat and other winter grains have been planted for the purpose of securing seed for distribution next season. There is no question that some varieties of wheat are better adapted than others for growing in certain sections of the State. The tests at the Experiment Stations prove this, and a farmer should be well repaid for securing a little pure seed of one or more of the best producing varieties as shown by the tests at the Experiment Stations. The Campbell system of culture is theoretically correct, and in part or whole it can be put into practice profitably on almost every farm in Kansas. The system is intended to favor the conservation of soil moisture, and is thus more especially adapted to the drier portions of the Western States, where the limited rainfall makes necessary the most careful methods of soil culture in order to conserve the water in the soil and get the most use from it in the production of crops."

### HOW TO PICK SEED-CORN.

Professor Willard's advice for the work of the coming few months in preparing for next summer's corn crop is one of the most helpful features of the talk. "During the winter the seedcorn should be carefully sorted over and breeding ears for next season's seed field selected. We have to-day score-cards for corn by which the perfect ears of different varieties are required to conform to a certain standard as regards size, length, type, uniformity, etc. Perhaps the breeders have not yet learned to recognize all the vital points of a good ear of corn, but some of the characteristics which indicate good quality and a high yield in corn are known. The ear should be of good size, symmetrical in form, with straight rows of long, well-dented, medium, wedgeshaped kernels. A cylindrical ear allows for more kernels on a cob and a more uniform length in kernel. The tips should be well filled, and at the butts of the ears the kernels should swell out about the shank."

Miss Elva Akin, '05, has gone to Emporia, where she will attend the State Normal School.—Students' Herald.

The annual report of the Kansas Gas, Water and Electric Association contains a very valuable article on the new Tantalum lamp, by Prof. B. F. Eyer. We have asked the professor to write a similar article, illustrated by ratio curves, for the Industrialist, and have his word that he will comply within a few weeks.

The Alpha Beta Alumni Association met Tuesday evening at the home of Kate Manly, '99. After the installation of the newly elected officers, F. A. Marlatt, '87, gave an address, Amy Allen, '04, recited an original poem, W. W. Hutto, '91, and wife furnished music, Emma (Knostman) Huse, '80, gave a talk on Russia. After the program refreshments were served and a social time enjoyed.—Students' Herald.

Prof. Henrietta Calvin goes to Topeka every Monday to lecture on therapeutic cooking to the senior class of nurses of Christ's Hospital. The afternoon lecture is illustrated by demonstration work and is given to a class of twelve bright young women. In the evening Mrs. Calvin lectures on dietetics to a class of thirty nurses. Both classes are very much interested in this work, and Professor Calvin speaks enthusiastically of their progress.

Capt. P. M. Shaffer was in Topeka Saturday to see the Washburn-Kansas football game, and while there was interviewed by a reporter of the Topeka Journal. Speaking of the game of football as played at the government military schools and army posts, Captain Shaffer said: "There is a growing sentiment that football is not an ideal sport for the army, for the reason that it gives a comparatively limited number of men the advantages of the exercise. What is needed is something which reaches all the men and gives them all an equal amount of exercise."

## THE INDUSTRIALIST

Published weekly during the College year by the Printing Department of the

## Kansas State Agricultural College Manhattan, Kansas.

PRES. E. R. NICHOLS.... Editor-in-Chief PROF. J. D. WALTERS... Local Editor PROF. J. T. WILLARD... Alumni Editor

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### Local Notes.

Contractor Stingley started the work of excavating for the new Horticultural Hall to-day, Monday.

Miss Edith Huntress and Miss Gertrude Rhodes went to Enterprise Wednesday afternoon to be present at the wedding of their friend, Miss Olivia Staatz.

Government expert R. A. Oakley, '03, was in the city Wednesday afternoon looking up reports on forage crops in the interest of the United States Department of Agriculture.

Assistant Cecilia Augspurger, of the Music Department, left for Farmer City, Ill., Monday afternoon, where she was called suddenly on the account of her father's serious illness.

Pres. E. R. Nichols left November 11 for Washington, D. C., to attend the national convention of the American Association of Agricultural Colleges. He was accompanied by his wife and son, Rae.

The Agricultural College second team had an easy time defeating the Chapman high school Monday afternoon. The score was 17 to 0. Chapman's team was light and simply demoralized by the farmers.

The city dads have repaired the defective sidewalks along Moro street between Eighth and Tenth streets. Now, a few more street crossings in the same quarter and the students will be satisfied for the winter.

The residents along the west side of Tenth street between the park gate and the College corner should get together and build a continuous sidewalk. This route is not in the city limits and can be built only by private effort.

H. V. Harlan and Augusta Griffing, both of the class of 1904, were married at the home of the bride's parents on College Hill, Wednesday, November 15. They will leave soon for the Philippines, where Mr. Harlan has a position in the employ of the Government.—Students' Herald.

Prof. Henrietta Calvin returned November 11 from a two-weeks' trip through Osborne, Mitchell and Lincoln counties, where she lectured before farmers' institutes, giving two lectures a day on domestic science. She reports that there is a general interest in this work all over the State. There will be a home culture club formed in Lincoln county by the young girls, whose attention is to be devoted to the study of home questions and home-making.

### Alumni and Former Students.

F. L. Courter, '05, is at home at Downs, Kan., and recently received as a birthday present a splendid span of horses.

Anna Monroe, '04, of Whiting, was in Manhattan for the Harlan-Griffing wedding and renewed acquaintances around College.

Scott S. Fay, '05, has returned to College and will take up advanced work in chemistry, especially in quantitative analysis.

Elsie Waters, '98, who has been teaching some classes at College, went last week to Junction City, where she has a position as teacher in the city schools.

J. M. Westgate, '97, and Inez (Wheeler) Westgate, '05, who were married, July 20, in Sacramento, Cal., are now at home in Washington, D. C., at 913 Eye street, N. W.

Crete Spencer, '05, is doing clerical work in the Department of Animal Industry, and Edith N. Davis, Lena Finley and Mrs. Grace Wood, of the same class, are teaching classes at College.

J. T. Skinner, '04, is now with the Lawrence Electric Company, and that W. H. Harold, '05, who was so long and seriously ill with typhoid fever this summer, left recently for Lawrence, to work with Mr. Skinner for this company.—Students' Herald.

Deacon E. W. Westgate, Master of the State Grange, and Miss Louisa M. Cowell, second-year student in 1887, were married in St. Louis, November 11, and left immediately for Atlantic City, N. J., to attend the National Grange meeting. After their return to Manhattan, Mr. and Mrs. Westgate will live on College Hill.

Mamie Hassebroek, '04, leaves very soon to take the position of assistant matron in the Sac and Fox Indian School, at Toledo, Iowa. Clara Barnhisel, '04, has just been transferred from this school to Genoa, Neb., as teacher in the Indian School there. J. F. Ross, '02, is teacher of agriculture in this school at Genoa, so K. S. A. C. is well represented.

- R. A. Carle and R. A. Fulton, '05, are in the employ of the Westinghouse Electric Manufacturing Company, of Pittsburg, but their address is Turtle Creek, Pa. They are members of an "Electric Club," and part of their work as members is to visit the electric plants in the vicinity of Pittsburg, which will be very interesting to them.—Students' Herald.
- C. P. Hartley, '92, assistant in physiology in the laboratory of plant breeding of the bureau of plant industry, is the author of Farmers' Bulletin No. 229 of the United States Department of Agriculture. The bulletin treats of "The Production of Good Seed-Corn," and contains an appendix by H. J. Webber, physiologist in charge of the laboratory, on the "Selection and Care of Seed-Corn." Among the topics discussed are: Improved strains needed for different localities; important characters a corn should possess; method of corn breeding outlined; care and testing of seed-corn.

### Level-Planted vs. Listed-Planted Corn.

A new phase of the study of corn roots at the Kansas State Agricultural College has recently been concluded, the purpose of which was not only to show the root development of the plant, but to compare the root systems of level- and lister-planted corn, and to show their relative advantages and disadvantages.

In the level-planted corn, the roots filled the soil, not only between the hills but beneath them to a depth of two to three feet,

the entire space being fully occupied.

The root crown of the lister-planted corn was fully three inches deeper, the roots less compact and fibrous. The depth of roots at the hill was practically the same as the depth midway between the hills.

It is the general experience of farmers who practice the lister method that listed corn stands drouth better than level-planted. This is due to the fact that listed corn can be cultivated deeper and closer to the hill at the last cultivation, and the ground is left with three or four inches of mellow soil over the roots close up to the hill. This soil mulch conserves the moisture and protects the roots from the sun.

Too deep cultivation of listed corn, or too deep and too close cultivation of the level-planted, will cut the roots and injure the corn. Medium deep cultivation, not too close to the roots, will

not injure them.

Early cultivation may be shallow, but in July and August a deeper mulch is necessary. Shallow early cultivation best clears the soil of weeds and favors the quicker warming of the ground. The later thick mulch regulates the soil temperature.

Experiments at the College show yields favoring shallow early

and deep late cultivation.

## A College Zoological Display.

The illustrative zoölogical display in the museum at the Kansas State Agricultural College is being rearranged along lines suggested by the plan now in use in the National Museum at Washington. New racks and cases are being constructed, and additional material is being prepared and installed.

The work is being done under the direction of Prof. E. A. Popenoe, State entomologist, and professor of entomology and

zoology. With reference to this work he says:

"Specimens are necessary adjuncts to laboratories and text-books in all biological work, and museums are accordingly provided in all well-equipped schools. Too often, however, the idea of a museum is that of a collection of labeled objects, duly marshalled on shelves behind glass doors, and exhibiting to the student or visitor a disheartening array of jars and bottles varying in size and proportion, but alike in rendering the contained object practically invisible.

This is especially likely to be true of a collection of inverte-

brate animals, and it is with a view of correcting this defect in such exhibits that the groups of invertebrate animals in the museum of the Kansas State Agricultural College are being displayed along an original plan which will render the collection at once attractive and instructive.

"The object is accomplished by associating in the exhibition cases with the speciman itself, abundant illustrations in the way of photographs, colored drawings, enlargements, dissections and diagrams of all features needed for the full understanding of the

characters and relationships of the animal.

'Ample printed or written labels accompany every object or illustration, some of these labels constituting extended paragraphs explanatory of the object and its relations. Biological facts are brought into connection by the addition of specimens showing the work of the animal, its structures, and, if of economic bearing, the character and methods of injury to articles or products of value. A collection of this kind, while lacking the uniformity of appearance as a whole, which is the apparent purpose of some displays, is by its variety made instantly attractive, and when attention is once caught the instructive purpose of the arrangement is insured."

## Short Courses at K. S. A. C.

On January 3, 1906, at the beginning of the winter term, the short courses begin at the Kansas State Agricultural College.

The Farmers' Short Course extends over two winter terms of twelve weeks each, and the work of both terms is taught each year, so that students may begin any winter term. Thirty hours of class work per week are required on the following subjects: Crop production, feeds and feeding, breeds of live stock, stock judging, horticulture, botany, physics, farm mechanics and management, diseases of farm animals, grain judging, carpentry, and either blacksmithing or traction-engine work.

The Farm Dairy Course covers one winter term of twelve It is similar to the first six studies of the farmers' course, except horticulture, with the addition of ten hours per

week of dairying and dairy practice.

The Dairy Course covers one winter term of twelve weeks, and includes thirty hours class work per week in dairying, feeds and feeding, diseases of dairy animals, bookkeeping, butter and cheese making, dairy practice, boiler and engine work. Ten of

the thirty hours is devoted to dairy practice.

The short courses are designed, in general, to meet the demands of those who cannot afford to take one of the long courses, either for lack of time or money. They are in no sense equivalent to the long courses. They teach essentially the facts without an elaboration of the underlying principles, giving ample time for daily application of the knowledge gained in the class room. work is intensely practical, and no less accurate than that of the regular courses.

# Kansas State Agricultural College

## Seven Four-Year Courses of Study

Each leading to B. S. degree, as follows:

Agriculture, Domestic Science, General Science, Mechanical Engineering, Electrical Engineering, Architecture, Veterinary Science



## Three Short Courses

Open to students of mature age who cannot, for lack of time or money, take one of the four-year courses

Domestic Science, two terms of 12 weeks each Dairying, one winter term of 12 weeks Agriculture, two winter terms of 12 weeks each



¶ A Preparatory Department for students over eighteen in which all the common-school branches are taught each term. Nearly all subjects of the first two years are taught each term, so that it is possible for one to complete the first two years' work by attendance during winter terms only.

Winter term and Short Courses in Agriculture and Dairying begin January 3, 1906

Catalogue or other information free, address

## E. R. Nichols, President

Manhattan, -- Kansas

THE X

Mistorical Society

# INDUSTRIALIST

Vol. 32

No. 10

ISSUED WEEKLY BY

Kansas State Agricultural College Manhattan



PUBLISHED BY
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# THE INDUSTRIALIST.

Vol. 32. Manhattan, Kan., Nov. 27, 1905.

No. 10

### Early Farmers' Institutes.

In a previous article a narration was given of the origin of farmers' institutes in this State, a movement, credit for which clearly belongs to this College. In pursuance of the intention of the Faculty to hold additional institutes we find that one was planned to be held at the Agricultural College, as recorded in the Manhattan Standard for January 16, 1869, in the following item and notice:

Remember the agricultural institute, noticed in another column. Attend if possible.

THE AGRICULTURAL INSTITUTE.

As heretofore stated, an agricultural institute will be held at the Agricultural College, beginning on Monday evening, the 18th, and continuing through Tuesday, Wednesday, and Thursday. A part of the regular exercises will be suspended during the continuance of the institute. A number of persons in this vicinity will unite with the Faculty in giving lectures and in the discussion of subjects. Messrs. G. W. Murtfeldt, one of the editors of Colman's Rural World, C. V. Riley, of the Entomologist, St. Louis, Hon. L. D. Bailey, of Douglas county, C. B. Lines, of Wabaunsee, Professors Kelsey and Norton, of the Normal School, and Geo. T. Anthony, editor of the Kansas Farmer, are expected to lecture and otherwise participate in the exercises. The public are cordially invited to attend.

Although this notice seems to indicate a previous announcement concerning the institute, diligent search failed to disclose it.

The Manhattan Standard for January 23, 1869, under the heading, "Agricultural Institute," gave a two-column account from which we learn that the following speakers contributed addresses or papers on the subjects named:

### THE AGRICULTURAL INSTITUTE.

### 

Vegetable Physiology: Propagation and Pruning under Its Teachings, W. Muir
WEDNESDAY MORNING.
Grape Pruning
Woman's Place in Agriculture
Wheat Growing
WEDNESDAY AFTERNOON.
The Past, Present and Future of Agriculture in Our Country. Emma Haines
The Past, Present and Future of Agriculture in our Country. Emilie Lohn Ross of Lawrence
Fruit Growing
Fruit Growing. E. L. Foster
A Year on the College Farm
WEDNESDAY EVENING.
WheatR. W. Jenkins
THURSDAY MORNING.
Chassa Making
The Republican and Solomon Valleys as Farming RegionsB. F. Mudge
THURSDAY AFTERNOON.
Potenty F. H. Snow
Orcharding W. Wells
THURSDAY EVENING.
The Kansas Gold Medal
Address
One of the speakers, William Muir, was from St. Louis and
appeared on the program in 1871 also, and possibly in later years.
appeared on the program in 12.12

One of the speakers, William Muir, was from St. Louis and appeared on the program in 1871 also, and possibly in later years. Jos. Savage was from Lawrence, and others of the speakers were from other parts of the State. It will be noted that Emma Haines, '67, now Mrs. Bowen, presented a paper, possibly the first one ever presented by a woman at a farmers' institute. Professor Lee's paper was printed in full in the Kansas Farmer for February, 1870. This strongly advocated instruction to young women in the science and practice of domestic economy. This number of the Farmer devoted fourteen columns to the account of this institute.

In 1871 a similar institute was held at the College which was advertised in the Manhattan Nationalist for January 13, and a full report of which was published in the Nationalist for January 27. Space does not permit giving the list of speakers and subjects in full. Among the speakers who were not College officers were Rev. Wm. Bishop, of Salina; D. B. Long, of Ft. Harker; Dr. Howsley, of Leavenworth, editor of the Western Garden; R. S. Elliott, industrial agent of the Kansas Pacific Railway Company; Prof. C. V. Riley, state entomologist of Missouri; Professor Bushman, who lectured on veterinary science; Wm. Muir, of Colman's Rural World; Dr. Chase, editor of the Kansas Farmer; Mr. Hull, of the Western Rural, and Rev. Chas. Reynolds, of Ft. Riley. These with several members of the College Faculty, W.

Marlatt of Manhattan, and a number of others presented a very strong program. The *Kansas Farmer* for February, 1871, gave three and one-half columns of "Proceedings of the Farmers' Institute," which closed with this interesting paragraph:

In conclusion we must say that we never attended a similar meeting in which so much interest was displayed by so large and intelligent an audience. During the entire four days the chapel was crowded from 9 A. M. to 9 P. M. with farmers and farmers' wives; and those who were not there can hardly understand what they have missed. It is determined to continue these institutes, which are simply farmers' clubs upon a large scale, and we hope they may be held every six months at least instead of annually. Resolutions of thanks were voted to Dr. Denison and the Faculty for their untiring labors previous to and during the session.

A similar institute was held in 1872, and was advertised by other papers in the State beside these of Manhattan. The *Nationalist* gave ten columns to a full report of the proceedings, from which the following extract is taken:

The enrolling committee reports four hundred twenty-eight in attendance at the institute. No one can fail to regard this institute as in the highest degree a success. The papers presented have been of the highest order. They were clear, practical, and so concise that no such meagre report as we are able to give can furnish our readers a conception of their power. It seems to us that no one can have quietly sat through the exercises of this institute without the conviction that this form of instruction, with its possible improvements, may, in the hands of judicious directors, become a great power in behalf of agricultural education.

The Kansas Farmer for February 1, 1872, gave a brief account of the "Agricultural Institute," from which the following extracts are taken:

It was originally intended, we believe, to hold these institutes under the auspices of the College Faculty, in different parts of the State, but this plan seems to have been abandoned for the one of holding these gatherings annually at the College during the winter term.

The suggestion of the idea, in Kansas, was quickly taken up by other states, and in two of them, at least, agricultural institutes have become a prosperous and permanent collateral to the great vine of industrial education, the slow growth of which has been watched with so much anxiety, but which is sure to bear fruit better and more abundantly than the most sanguine hoped for in the planting and rearing.

The fifth annual institute was held as usual in 1873. The attendance was referred to as "surprisingly large" by the Kansas Farmer, which also mentions that "Mothers and daughters were there with their knitting and crochet needles and work." The Nationalist refers to this as "The most profitable and interesting one yet held." Among the features that attracted attention was a paper on the chemistry of soils by Miss Jennie Detmers, who

was the teacher of chemistry and German in the College at that time.

The institute held in 1874 was the last one of this series under the special patronage of the College. Classes were dismissed and students were expected to attend. The Board of Regents attended some of the sessions. I have not followed the subsequent history of these institutes in detail. I understand that later ones were fostered by the Bluemont Farmers' Club and were of a more local character. The Bluemont Farmers' Club was organized Friday evening, January 31, 1873, with the following officers: Maj. Fred E. Miller, president; O. W. Bill, vice-president; Chas. Kimball, recording secretary; W. Marlatt, corresponding secretary, and G. C. Campbell, treasurer. Major Miller was professor of practical agriculture and superintendent of the farm at the College. Institutes were held in nearly if not quite all years at least as late as 1888, when the nineteenth annual meeting was held. These J. T. WILLARD. meetings are no longer continued.

### Corn and Wheat Institute Train on the Rock Island System.

The corn and wheat special train completed its two-weeks' trip last Saturday, having touched every station but three on the entire Rock Island System in this State. These are scattered through a length of 1030 miles, and to reach them the speakers traveled about 2075 miles. Addresses were made at 135 stations, a few being left out in planning the schedule, and some of those

included proving to be unimportant sidings.

The train consisted of an engine, two ordinary coaches used as audience cars, a business car, No. 1903, for the use of the College party, and another for the railroad officials accompanying the the train. The first week an empty baggage-car was included between the engine and the audience cars. This was an advantage as it removed the noise of the engine which, even at stations, was sufficient to interfere with hearing in the car next to it. ness car was in the care of William D. Haskins, who combined in a thoroughly satisfactory manner the functions of porter and cook. A stateroom and berths provided accommodations for a party of seven, so that the physical needs of the party were perfectly provided for. This was no small item in maintaining the efficiency of the speakers. The audience cars were equipped with charts and samples of grain used in illustrating the lectures given, but there was no general exhibit; neither was there any outside display of banners. Exhibits, except such as are actually referred to, are believed to detract from the effectiveness of the

lectures given by leading to lack of concentration of attention. The people were admitted to the audience cars by the steps between the two, and as they came up were met by the announcement that a corn lecture would be given in one car and a wheat lecture in the other. Each then went to the car that he preferred.

As the stops were one-half hour long, only about twenty-five minutes could be given to the lectures. While this is too short a time, much could be crowded into it. The evening sessions occupied an hour and a half to two hours at each place. All of the speakers participated and opportunity for discussion was afforded. On the train there was very little time for questions and answers.

The speakers accompanying the train were Professors TenEyck and Willard and Assistant Professor Shoesmith. As there were two addresses given at each stop, each speaker would have rested one-third of the time had addresses on both corn and wheat been given at every stop. At many of the stations, however, only one of these crops seemed to have any special interest, so that at some of the stations in the corn belt only the corn lecture was given, and in the wheat belt only the wheat lecture was called for at a number of places. Altogether 236 lectures were given, 105 on wheat and 131 on corn. At 46 meetings only one speaker lectured, at 79 two speakers, at eight, three speakers, and at two meetings four addresses were given, President Nichols taking part on these occasions. President Nichols accompanied the party the first four days, when he was obliged to leave in order to attend the meeting of the Association of American Agricultural Colleges and Experiment Stations in Washington, D. C.

The College speakers and the railroad officials were very much pleased with the reception of the train. The attendance was more than some of us at least expected, and the attention was very gratifying. The people of the western part of the State, if any distinctions are made, seemed to be more appreciative of the addresses than those farther east, perhaps because of less work of this kind having been done there in previous years. There can be no doubt that the train will result in much benefit to the localities visited. A careful estimate was made of the attendance and the total number was nearly ten thousand.

At a number of the stations the pupils from the public schools were brought down to hear the lectures. This was not antici

pated in planning the trip, but the children as a rule were shown into but one of the cars and a suitable modification of the lecture given them. It is not unlikely that talks of the right kind to the children would be more effective in the end than those given to persons of fixed habits and opinions.

Thursday of last week Regents McDowell and Berry joined the party and remained until the end of the trip. By their previous interest in the undertaking the meetings were made especially successful through Smith and Jewell counties. Mr. R. E. Haward, representing the Country Gentleman, accompanied the train the entire time excepting the first day; Prof. E. B. Cowgill editor of the Kansas Farmer, was with us on Saturday, the 11th and Mr. Nellis, representing the same paper, accompanied the train on the 14th; Mr. G. W. Hervey, representing the Twentieth Century Farmer, joined us at Belleville and traveled with us to Horton, which we reached the next day; M. D. Snodgrass, of the senior class and representing the Kansas Agricultural Review, accompanied the train for three days, November 13 to 15. Crowther, of the Topeka Capital, was present the last two days. Chas. Lewis, president of the Lewis-Tuttle Manufacturing Co., assisted us greatly in handling the crowds and in distributing circulars showing the grain yields at the three stations, Manhattan, Hays, and McPherson, which were handed to the people as they went out of the cars. He was with us the entire trip.

The railroad officials and trainmen did everything possible to make the undertaking successful and to add to the comfort and pleasure of the College party. The following officials were present on their respective divisions: Division Superintendents J. B. Smalley and C. M. Jones; Division Freight Agents E. B. Hooser, O. P. Byers, and E. F. Strain; Traveling Freight Agents G. M. Thompson and Edwin Harding; Trainmasters M. O. Gay, D. Burleigh, and J. W. Usher; Conductors Slaymaker, Haas, Bryan, and

Goode.

For the success of the evening meetings we are under special obligations to Representatives C. B. Kirtland, J. S. Barnes and C. M. Beeson, at Salina, Pratt and Dodge City, respectively; and to Mr. F. W. Boyd, senior student in 1903, Phillipsburg; Mr. Scott Hopkins, Horton; Mr. D. D. Branwell, Belleville; and Mr. A. F. Turner, '05, Norton.

Among the many pleasures of the trip one of the greatest was that afforded by meeting many graduates or former students of the College as well as a host of friends of the institution.

Commenced on the water of the state of T. T. WILLARD.

## THE INDUSTRIALIST

Published weekly during the College year by the Printing Department of the

## Kansas State Agricultural College Manhattan, Kansas.

PRES. E. R. NICHOLS	Editor-in-Chief
PROF. J. D. WALTERS.	Local Editor
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### Local Notes.

Fall term closes on Friday, December 22.

Professor Kammeyer was under the weather last Tuesday.

The walls of the addition to the boiler-house are completed.

The Ottawa county club had a social in Kedzie Hall last Friday night.

The senior girls of the domestic science course are learning to use the electric stove.

Mr. T. W. Kraft, of Salina, visited College last Tuesday and Wednesday. He intends to send his children here soon.

Professor French, of the chair of agriculture of Idaho Agricultural College, was an interested visitor at College last Tuesday.

Professor McKeever and Assistant Melick spoke to the students on "Rooting; how to do it and how not to do it," one morning of last week.

On account of the sickness of Prof. and Mrs. E. B. McCormick's baby, the professor was compelled to be absent from some of his classes last week.

Doctor Schoenleber went to the western part of the State last week to investigate a number of cases of glanders. He visited Goodland and St. Francis.

The State Horticultural Society will hold its annual meeting at Topeka, December 26, 27, and 28. There will be a display of fruit in connection with the meeting. Professor Dickens, of this College, will read a paper on, "The Ideal Plum and How to Grow It."

J. M. Green, a former student of the architectural course, writes from Armour Institute, Chicago, that he intends to return to the Agricultural College next January to complete his work here, and that he will bring a number of students with him from that institution.

The Union Pacific had one of its gasoline-motor passenger cars on exhibition here last week, and many of the students went down to see it. The run from Beatrice to Kansas City, a distance of 220 miles, was made by the car in less than ten hours, including the stops at Manhattan and Topeka.

Professor Walters has burned midnight oil this week over the translation into English of Dr. Horn's recent pamphlet on Cicindela. The translation was made for Mr. W. Knaus, of McPherson, who may publish it, as he has republished other works of the great German authority on Entomology.

It is more than interesting to hear the Nimrods of the Faculty tell of their hunting expeditions, when they get together before chapel in the morning. If these gentlemen are strictly true as to numbers of long ears killed, there will not be a cottontail left within ten miles of Manhattan when we write A. D. 1906.

Regent Fairchild and President Nichols have returned from Washington, D. C., where they attended the annual meeting of the Association of American Agricultural Colleges and Experiment Stations. They report a profitable session. In another paragraph will be found a number of subjects which were being considered.

At a special meeting of the Faculty on Thursday it was voted to give the students a vacation on Friday and Saturday of Thanksgiving week. To partially make up for lost time, school will keep on Monday. This arrangement was made to accommodate the many students who wish to go home and eat turkey and the professors who are on the programs of the division teachers' associations. A number of teachers will also go to Lawrence to attend the session of the Kansas Academy of Science.

The rules of the Faculty concerning football teams require that no student shall play in the public arena who does not successfully carry a minimum of ten hours of recitation work and four hours of laboratory work per week. The following students have at their request received permission to take part in public games for the remainder of fall term: R. R. Baird, I. E. Brown, C. Blake, E. C. Canfield, H. Coldwell, R. Cooley, W. B. Cave, S. W. Cunningham, M. R. Edelblute, R. Eberhart, C. O. Ferris, E. Guild, L. E. Gaston, W. L. Hart, A. L. Haggman, F. C. Harris, M. A. Hindricks, B. D. Jeffs, P. E. Johnson, C. B. Kirk, F. R. Lindsey, A. J. Larmer, C. E. Mallon, J. S. Montgomery, G. Milligan, G. M. Madtson, A. B. Nystrom, A. J. Ostlund, W. Scholz, M. I. Stauffer, W. B. Thurston, C. E. Whipple, B. H. Wilbur, H. Oskins. A. E. Tebow, G. S. Warren.

The Association of Agricultural Colleges and Experiment Stations, in session at Washington, D. C., week before last, pledged its support of what is known as the Adams bill in congress, making larger federal appropriations for the experiment stations in the A resolution was adopted authorizing a conseveral states. ference between the association and the National Educational Association, with a view to the establishment of a section on agriculture in the educational association. That on experiof the session was devoted to work by sections. ment station work discussed "Soil Investigations." taking up the several papers on different phases of this topic, the section elected C. B. Buffum, of Wyoming, chairman of the section for the coming year; C. L. Curtis, of Iowa, was elected a member of the executive committee. The association of official horticultural inspectors elected Prof. S. A. Forbes, of Illinois, chairman. The association resolved to urge upon congress the necessity of providing an appropriation to be used in exterminating plant pests in like manner as is provided for the war against diseases of cattle. Uniform state laws regulating nurseries and the shipment and sale of plants is recognized as the present necessity most essential to the welfare of plant industry, and the association voted for the appointment of a commission to work for this object.

The Manhattan Domestic Science Club is studying Russia this winter as a part of its program. At their last meeting the ladies invited Assistant Professor Potter, of this College, to lecture to them on "Student Life in Russia," and invited a large number of friends to hear the lecture, which was given in the Carnegie library. The lecture was well received. Following is a report from the Daily Republic: "Assistant Professor Potter followed with a lecture, 'The Cause and History of Disorders Among Students of Russia.' Professor Potter has been a student at the University of Kiev, and has had unusual opportunities for noting the evils that exist in the higher schools of Russia. The professor is a graceful and animated speaker, and held the rapt attention of his audience during the time allotted to his address. The writer voices the sentiment of the club in hoping that he will address them again on some Russian subject before the year of study ends."

### Alumni and Former Students.

C. M. Buck, '96, and Winifred (Houghton) Buck, '97, are now located at 1006 Garfield Avenue, Topeka, Kan.

Miss Anna Monroe, '04, who came for the Harlan-Griffing wedding, spent several days visiting in town and about College, returning home on Saturday.

W. K. Evans, '05, and J. Nygard, '05, met the Rock Island special at Jennings and gave broad smiles and glad hands to the corn and wheat lecturers.

We are in receipt of an interesting address upon "Dwarf Fruit Trees," presented before the Massachusetts Horticultural Society by Prof. F. A. Waugh, '91.

- C. K. Peck, student in 1892, was married to Miss Henrietta Hynes, November 15, at Minneapolis, Minn. After December 10 they will be at home at Pipestone, Minn.
- J. J. Biddison, '04, was a welcome caller on the Rock Island institute train when at Topeka. An appreciative "story" followed in the Topeka *Herald*, upon which Mr. Biddison is employed.
- A. C. Smith, '97, of Seattle, Wash, who was called here by the death of his sister Lottie, has returned to the West accompanied by his mother, Mrs. Caleb Smith, who will spend the winter there.
- Jno. S. Greenlund, Clifton, demonstrated the benefits of the agricultural short course, which he took last winter, by bringing a crate of splendid Reid's Yellow Dent corn to the institute train last week.

Ed. H. Webster, '96, Chief of the Dairy Division of the Bureau of Animal Industry, called at the College last Saturday to renew acquaintance with old friends. He spent Sunday at Randolph and returned to Washington the next day. He and Mrs. Webster (Nora Fryhofer, '95) are enjoying their Washington home and associations very much.

Harriet (Nichols) Donohoo, '98, made the trip from Tucumcari, N. M., to Liberal, Kan., in order to see the College speakers on the institute train. Hope Brady, '98, was also a welcome caller. Dr. R. T. Nichols, '99, with Mrs. Nichols and the boy, heard the wheat lecture and entertained the alumni editor in their beautiful little home. Dr. Nichols reports that his practice is all he could ask and as much as he can do.

S. I. Wilkin, J. C. Wilkin, and Mary E. Wilkin, former students who should have graduated, and are among the most loyal friends of the College, drove fifteen miles and back in order to attend the corn-wheat institute at Phillipsburg. They cannot get along without the Industrialist, even if they are not alumni. M. C. Adams, '99, and Mamie (Alexander) Boyd, '02, were also at the Phillipsburg institute. Mr. and Mrs. Boyd entertained Professor Ten Eyck and Assistant Professor Shoesmith at dinner.

Among the graduates not elsewhere mentioned who looked in upon us on the corn-wheat special, the following are recalled: V. L. Cory, '04, McPherson; the Felton brothers, '04, Groveland; C. D. McCauley, '96, Fowler; Wayne White, '05, Dodge City; S. S. Fay, '05, White City; L. J. Munger, '05, Clyde; H. W. Avery, '91, Clay Center; Sarah Davies, '02, Bala; Ernest Cottrell, '99, and J. C. Bolton, '99, Wabaunsee; E. W. Reed, '92, and J. A. Rokes, '93, Holton; P. K. Symns, '01, Bendena, and Clara Goodrich, '03, Mankato. The shortness of the stops afforded little opportunity for inquiring into the prosperity of these friends, but the sight of them was good for the eyes, and one and all they seemed to be honoring the institution that sent them forth. In addition to graduates, many other former students in long and short courses were met.

We have just received a September copy of the Mindanao Herald, published in Zamboanga, P. I., which states that Col. Jas. G. Harbord, '86, commanding the Fifth Constabulary District, will shortly be relieved from duty at Zamboanga and assigned to the command of the Second District, Tayabas. Further comment is made thus: "By the transfer of Colonel Harbord the province loses one of its most efficient and progressive officers. the short space of two years he has organized an efficient force of thoroughly disciplined soldiers from among the half-wild and bloodthirsty tribes of the province, has established garrisons in the interior of the island, and, though hampered by lack of sufficient officers and means of communication, has brought his com-His transfer is a mand to a most creditable state of efficiency. matter of regret to all who have the interests of the province at heart."

### Improving Sweet Corn at K. S. A. C.

The Botanical Department at the Kansas State Agricultural College has been at work for three years on a line of work in corn breeding, namely, the crossing of field with sweet corn, the object in view being the improvement of the yield of sweet corn for commercial purposes. In the first year a great many crosses were made between many different varieties of sweet and dent corn. From the ears, developed as a result of the first year's crossing, only those seed were saved for planting which showed double fertilization, in order to be doubly sure of the certainty that a hybrid was really being worked with. For example: If you cross Iowa Silver Mine (a white dent corn) with pollen taken from the tassle of a plant of Black Mexican sweet corn (a variety with black-colored seed coat), the result will be that the cross-pollinated ears of the Iowa Silver Mine will most of them show no difference in any of the kernels from what would have occurred if the pollen used had been taken from a plant of the same variety, and yet every kernel may actually contain a hybrid germ.

It always happens in corn crossing that accidents occur, and occasionally a little pollen of Iowa Silver Mine may, by some accident, fall on the silk of the ear we are crossing with Black Mexican pollen, during the brief interval that the ear is exposed for hand pollination (being kept enclosed in a paper sack before and after pollination). However, there is one certain clew for the hybridizer. After cross-fertilized ears of Iowa Silver Mine are ripened, if he will look them over he will find here and there a black kernel amongst the rows of white ones. This black kernel he will at once pick off and save, for he is absolutely certain that it contains a hybrid germ between the Iowa Silver Mine and the Black Mexican. This is by the fact that the phenomenon of double fertilization has taken place and the influence of the male parent

has been propagated to the cells of the endosperm.

Of course, it may be that all the rest of the seeds of the ear in question may actually be hybrids, and in well-conducted experiments with the proper precautions during the pollination this will actually be the case; but there is always a shadow of a doubt which can be eliminated by selecting only the double fertilized kernels, which gives ocular evidence of their character and origin.

Now these "double-fertilized" kernels from many crosses were all planted last year, and the ear on each plant was pollinated with pollen from its own tassel, which resulted, of course, in close fer-These close-fertilized ears, as was expected, developed kernels in which the sweet corn and dent corn were distributed in certain proportions. Different types of these kernels were saved and planted during the past season, and the ears were again rigidly close-fertilized.

Results seen this fall are extremely interesting, and there are seen emerging a number of very striking and interesting types of ears. One type of ear is particularly striking. the result of a cross between a yellow dent field corn and a white sweet corn. The ears from the third season's close-fertilized

progeny are of several distinct types, of which the most interesting, just referred to, has kernels of a sweet corn texture for about three-fourths of the depth of the kernel, and of a deep orange color, entirely distinct from the color of any sweet corn in the market; but the interesting fact is that the kernels are very long and deep, and the ears large, running from six to eight inches in length and from two to two and one-half inches in diameter; rows straight, closely packed, and well filled.

This variety alone, if it remains constant, which next season will finally determine, bids fair to furnish a sweet corn of a yield superior to those now commonly grown. Other equally interesting types might be mentioned, but the practical interest of the experiment will be evident from what has been given. Sweet corn is a profitable crop where canning facilities exist in the neighborhood, and it is evident that anything that will increase the yield of sweet corn per acre will benefit the farmers and market-gardeners.

### Cerebritis in Horses.

Dr. F. S. Schoenleber, State veterinarian and professor of veterinary science at the Kansas State Agricultural College, reports new outbreaks of cerebritis, or "staggers," in horses in Pratt county and vicinity. Serious losses are occurring.

The disease is the result of feeding wormy or mouldy corn, infested with the mould *Aspergillus glaucus*, and follows when the corn is fed either as a grain ration or as fodder, or when obtained by pasturing in the stalk fields.

It produces an inflammation of the brain or spinal cord, associated with a breaking down of the nerve tissue. Its symptoms are apparent blindness, partial consciousness, usually trembling of the muscles, and a tendency to turn in a circle to right or left, with staggering, delirium, ease of excitability, and a tendency to push the head or breast against manger or wall. The least irritation to the skin often causes violent kicking. Loss of flesh and extreme weakness accompany the disease.

The animal will sometimes eat anything offered him, a handful of salt sometimes being swallowed greedily. He seems to prefer the mouldy corn to the good, in this way being like the locoed horse. After a certain stage of the disease is reached he is unable to swallow at all.

Infected animals usually die within a week, two to three days being an average. Where the spinal cord only is affected the animals frequently recover. Practically all cases in which the brain is the seat of the disease are fatal. Mules are rarely affected.

Treatment is unsatisfactory, the best procedure being prevention. Avoid the wormy, mouldy corn. After placing the animal where he will be comfortable, and cannot injure either himself or other animals, soft laxative food, as thin mashes, should be fed.

In some cases the horse does not begin to become diseased for a month after being turned into the stalk fields, and may contract the disease from a week to ten days after the mouldy corn has been withheld. The infested corn may be fed to hogs without injury.

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Manhattan, -- Kansas

# INDUSTRIALIST

Vol. 32

No. 11

ISSUED WEEKLY BY

Kansas State Agricultural College Manhattan



PUBLISHED BY
PRINTING DEPARTMENT
J. D. RICKMAN, Supt.

Entered at post-office, Manhattan, Kan., as second-class matter. Act of July 16, 1894.

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# THE INDUSTRIALIST.

Vol. 32.

MANHATTAN, KAN., DEC. 4, 1905.

No. 11

### Shrinkage of Farm Products.

ORN.—Bulletin No. 199 of the Michigan Experiment Station, published in May, 1901, contains some valuable data on the shrinkage of grain in the bin, corn in the crib, and fodder and hay in the stack or mow. On the shrinkage of corn after it is shucked and put into the crib the results of several trials are re-Among the most interesting are the experiments by Dr. Manley Miles, on the Houghton farm, in 1891, when he made a large number of experiments in fertilizing the land for corn and incidently tested the shrinkage of the corn and the cob during the There was harvested 55,553 pounds of ears and put in the crib in October, which weighed 47,819 pounds in March following, a shrinkage of 13.92 per cent. From another series of plots 48,830 pounds weighed, in the following March, 40,699 pounds, a shrinkage of 16.65 per cent. In this case the corn was shelled, the corn and cobs being weighed and kept separately. The average shrinkage of the shelled corn from October to March was 7.41 per cent. The cobs lost in weight, on the average, 36.78 per cent. Of the gross weight, 19.84 per cent of the ears as shelled in March was cobs.

In an experiment conducted at the Michigan Experiment Station in 1896, 16,767 pounds of very damp corn were placed in the crib October 3 and 5. On February 13 this corn was weighed and had lost a little over 30 per cent in weight. The case was considered extreme, as the corn was unusually damp when placed in the crib. In another experiment, in 1895, at the Michigan Station, when the corn was placed in the crib October 21, in a fairly dry condition, 3,310 pounds of ears showed a loss of 359 pounds, or a shrinkage of about 11 per cent in weight.

In the bulletin referred to, various other experiments are quoted, in which the shrinkage of corn left in the crib two to six months ranged from 3 to 15 per cent. An experiment conducted at the Iowa Experiment Station in 1898, as reported in Bulletin No. 45 of that station, gave a total shrinkage of 20 per cent in weight in 12 months on 7000 pounds of ear corn placed in the crib

October 19, 1898, and weighed out again October 19, 1899. This corn lost 9 per cent in weight during the first three months after it was cribbed, during the first six months the corn lost 14.4 per cent, as shown by weights taken April 19. The crib continued to lose gradually in weight during the summer, the lowest weights being secured October 4, a couple of weeks before the experiment was discontinued.

During the past two seasons we have undertaken some experiments at this Station in testing the shrinkage of corn. Three small board cribs, covered with fine wire netting to keep out mice, were used, each of which held about 4000 pounds of ear corn, when the corn was put in in the fall. The test was made with white dent corn, yellow dent corn, and with a mixed lot of corn of the dent type. The white dent and yellow dent corn were medium late maturing varieties, while the mixed corn included a small amount of corn from a large number of varieties, including early, medium, and late maturing corn.

In the first trial the corn was husked and put into the cribs December 5, 1903. Moisture determinations made at husking showed that the ear corn of the white variety contained 24.94 per cent of moisture, while the yellow corn showed a moisture content of 19.73 per cent. No moisture determination was made of the mixed corn. The weights of the cribs were taken regularly each month during the winter, spring, and summer. On February 5, three months after the corn was cribbed, it had lost on the average about 3 per cent in weight. During the balance of the winter and spring until April 6 there was practically no loss With the exception of one crib, the yellow corn, there in weight. was a gradual loss in weight during the late spring and early summer months. On June 7, six months after the date of cribbing. the white corn had lost 10 per cent, the mixed corn 5 per cent, and the yellow corn 1 per cent in weight. On July 4 the weights were taken again and showed very little change. The final weights were taken August 17 and showed a large decrease in weight of the yellow corn; the white corn had gained a little, while the mixed corn had lost a few pounds in weight. The total loss in weight in the little over eight months was as follows: The white corn showed a shrinkage of 9 per cent, the mixed corn 5½ per cent, and the yellow corn 10 per cent. The average shrinkage on the 11,223 pounds of corn put into the three cribs was about 8 per cent. Mice got into the crib of yellow corn and were perhaps the cause of the greater shrinkage in this crib.

This experiment was continued in 1904-'05, similar classes of

corn being used. The corn was husked earlier last season and was put into the crib October 26. However, as shown by the moisture determinations, the corn cribbed in the fall of 1904 was drier when cribbed than was the corn cribbed in 1903, the white corn showing 18.95 per cent of moisture and the yellow corn 21.32 per cent. (The yellow corn used in 1904 was of a later maturing sort than that used in 1903, while the white corn was of the same variety.) On January 31 the weights of the cribs were taken and showed an average loss of about 6 per cent, the yellow corn losing about 2 per cent more in weight than the other corn, showing a total shrinkage of 8 per cent. The cribs were weighed again March 6, but showed little decrease in weight. Weights were taken during the spring months, and there was a gradual shrinkage which reached its lowest point June 20, when the white corn showed a loss of 11 per cent, the yellow corn a loss of 15 per cent, and the mixed corn a loss of 7 per cent in weight. The weights taken in July and August showed a slight increase above those taken in June. No weights were taken in September, and on October 7 final weights were taken and the experiment discontinued. Between the dates of August 24 and October 7 the white corn lost 5 per cent, the yellow corn lost  $1\frac{1}{2}$  per cent, while the mixed corn gained 1 per cent in weight. The corn was not carefully examined for weevil at the time the cribs were emptied, but a few weeks later a careful examination was made of the shelled corn which still remained in sacks and no indications of the presence of the grain weevil were discovered. The total shrinkage of the several cribs of corn from October 26, 1904, to October 7, 1905, was 14.4 per cent for the white corn, 15.3 per cent for the yellow corn, and 6.8 per cent for the mixed corn, or an average shrinkage of a little over 12 per cent in a year. The summer of 1905 was drier and hotter than the summer of 1904, which may account in part for the greater shrinkage in 1904-'05.

This experiment is being repeated again with the purpose of discovering if possible what occasions the decrease in weight. It would appear that the shrinkage in corn is not due entirely to the loss of moisture, but that there is an actual loss of dry matter; a determination of the moisture in the corn was not made at the close of the above experiments, but a determination of the moisture in other samples of corn shows that ear corn, which is thoroughly air dry, will contain from 12 to 14 per cent of moisture. Thus the shrinkage in the weight of the white corn, due to loss of moisture, could not be more than 6 or 7 per cent, since the ear corn contained only 19 per cent of moisture when put into the crib.

From these experiments and others it appears that, where corn is put into the crib fairly dry and in good condition, the shrinkage during the winter months is not great, being less than 5 per cent on the average in the trials which were made at the Kansas station. This loss would not be sufficient to equal the difference between the weights which are required for a bushel of ear corn as sold in the fall and as it may be sold in the winter. In the winter season 70 pounds of good dry ear corn is considered a bushel, while in the fall the farmer is required to give 75 to 80 pounds for a bushel. Even in six months after the corn is put into the crib in good condition the loss on the original weight is not so great as to decrease the actual value of the corn when the fact is considered that at husking time the price of corn per bushel is often more than 10 per cent less than the price in the spring or early summer.

Besides the loss of moisture and loss in weight of the corn due to natural agencies, corn held in the crib on the average farm is more or less subject to damage and loss in other ways. Mice and rats are the means of the destruction of a large amount of grain during the year, on the average farm. Poor shelter and careless methods of storing, by which the grain may be damaged by rain and snow, is also another means of loss in weight and value of the crop.

As to whether a farmer should hold his corn or sell it early in the winter may depend upon several factors, as the price of corn, the size of the general crop, the condition at husking time, and the accommodation which the farmer may have for cribbing and holding the corn. If the crop is normal and the price of corn when husked is unusually low and the farmer has a good crop, the usual recommendation would be to hold the corn. Judging from the experiments conducted at the Kansas Station, corn may be kept safely without great loss in weight until June or July, and if there is a question as to the success of the new crop it may be advisable to hold old corn even later than the dates named. in Kansas and in the states further south, old corn is very apt to become infected with the grain weevil or with the grain moth and great loss occasioned in this way provided the corn is held too late in the summer. In the Northern States, where these pests do not prevail, corn may be more safely held for late summer and early fall sale.

WHEAT AND OTHER SMALL GRAIN.—No experiments have been carried on at the Kansas Station to determine what may be the shrinkage of wheat after it is threshed and put into the bin. In the Michigan bulletin referred to, several experiments in handling

wheat are recorded. In 1896 Christian Breisch & Co., millers of North Lansing, Mich., placed 900 bushels of wheat in an elevator while the grain was still slightly damp. In four months time there was a shrinkage of  $3\frac{1}{8}$  per cent in the weight of this grain. weight of air-dry wheat will vary according to the humidity of the atmosphere, thus samples of wheat taken from a bin, according to a report by the New York Experiment Station in 1884, varied in moisture content as follows: September 22, 11.96 per cent of moisture was present; October 13, 15.67 per cent; October 23, 14.63 per cent; and November 21, 14.17 per cent. Other experiments have shown that the weight of wheat will vary from date to date. On the whole, experiments along this line indicate that dry grain put into a bin will show no appreciable decrease in weight; in fact, if the grain is very dry when threshed it may increase in weight after it is put into the bin. At the Michigan Experiment Station 6000 pounds of wheat threshed July 18, 1898, in dry weather and in good condition for storing, showed a shrinkage after 332 days of less than one-half of one per cent. Air-dry wheat contains from 10 to 13 per cent of moisture, and a given quantity of grain increases or decreases in weight according to the dryness of the air, the variation in weight, except under extraordinary conditions, amounting to not more than one or two per cent.

Little data has been published with reference to the shrinkage of other small grain. At the Michigan Station, 4,243 pounds of oats stored in September, 1892, had lost in weight a little less than 1 per cent when weighed again in the following March. In 1896, 100 bushels of oats stored in August showed a loss of only 7 pounds in weight in the March following. In the third experiment, 1038 pounds of oats stored in a tight bin October 3, 1899, showed a shrinkage in weight of 3.4 per cent when the grain was removed in May, 1900. From the results of these experiments and the general experience of farmers we may conclude that when wheat, oats, barley, or other small grain is threshed and put in the bin dry and in good condition, little shrinkage in weight will take place for an interval of at least several months, other than the waste which may be occasioned by mice, rats, or insects.

HAY.—An experiment was conducted at the Kansas Station in 1888 in order to determine the shrinkage of hay in the mow. This experiment was conducted by Professors G. H. Failyer and J. T. Willard. As reported in the First Annual Report of the station, the plan was to fill canvas sacks with the several kinds of hay and bury the sacks in the mow, the weights of the sacks of hay having

been taken when hay was stored. The hay of the several kinds was harvested and put into the mow, in good condition, in June, July, and August. On December 15 of the same year the sacks were taken out of the mow and the loss in weight determined; also moisture determinations were made of the hay both at the time of stacking and again when the final weights were taken. The hay remained in the mow from four to six months. The following are the results of the trial:

	KIND OF HAY.	Per cent Moisture when Stored.		Per cent Loss in Weight.
Orchard grass	s, blue grass and clover	 15.65	10.54	5.71
Orchard grass	and clover	 19.59	10.60	10.05
Millet	and clover	 19.75	11.80	9.01
Clover		 21.86	8.89	14.25
Prairie Hay		 9.08	11.87	3.17*
		14.00	10.61	3.39

From this experiment it would appear that the loss in weight of hay after being in the mow for several months, of the grasses ordinarily grown in this State, may vary from 3 to 10 per cent, depending somewhat upon the kind of hay and the condition of the hay when it was stacked. In the above experiment it appears that clover actually gained in weight, which would be unusual, since clover is often stacked rather green; and this is true of alfalfa Millet showed the greatest decrease in weight—14.25 per cent-but this would hardly class with the hay made from perennial grasses.

At this Station during the past season a determination of the moisture in samples of hay of various kinds was made when the hay was stacked. All of the hay was well cured and stacked in good condition. The moisture in the several samples as determined is given as follows: Bromus inermis, 17.45 per cent; English blue-grass, 15.09 per cent; Orchard-grass, 15.41 per cent; Tall meadow oat grass, 13.95 per cent; Italian rye grass, 17.30 per cent; Alfalfa, 17.3 per cent; Red clover, 14.9 per cent; Alsike clover, 16.41 per cent; and White Bokhara clover, 17.37 per cent. It would appear from the first experiment quoted that all kinds of hay will contain about the same percentage of moisture when fully cured out, the moisture varying from 10 to 12 per cent. Thus noting the amount of moisture in the hay put into the College mow this season we may fairly conclude that the Bromus inermis may lose from 5 to 7 per cent in weight; alfalfa is subject to about the same shrinkage, while the red clover and English blue-grass

may not shrink in weight more than two to five per cent, provided there is no shrinkage other than that due to loss of moisture.

At the Michigan Experiment Station, as reported in the bulletin named above, some experiments have been made in determining the shrinkage of timothy hay. Five tons of dry timothy hay put into the barn June 27, 1896, was found to have decreased 7 per cent in weight when removed on January 26 of the following year. In 1898, 5600 pounds of timothy hay stored in the barn on July 6 had decreased in weight 13.8 per cent when weighed out February 18, 1899. Other experiments in determining the shrinkage of hay have been conducted at other experiment stations. As reported in the Fourth Annual Report of the Utah Station, a ton of timothy hay stored in the barn July 20, 1892, had lost 15 per cent in weight when removed April 20, 1893, while a stack containing two tons of hay built out-of-doors and well covered gained about 1 per cent in weight in the same period. While clover hay stacked in the barn lost 3.75 per cent in weight, clover hay stacked out-of-doors gained 10 per cent in weight.

At the Missouri Experiment Station, 5,678 pounds of timothy hay, as stacked from the field, showed a loss in weight the following spring of 12.5 per cent; while two tons of hay placed in the barn at the same time gave a loss of only 7 per cent in weight. At the same Station three tons of second growth clover weighed and stacked in July had lost 30 per cent in weight when removed the following March. At the Michigan Station clover hay put in the stack in September had lost 22.6 per cent in weight when taken out in the February following. A portion of this hay was musty, which indicated that it had been stacked too green.

Men experienced in handling hay usually figure on about 20 per cent loss in weight after the hay is put into the mow until it is sold or baled out. Also the statement is made that after baling hay each bale will shrink from 1 to 4 pounds. As hay is ordinarily stacked on the farm there is often considerable loss from damage by rains so that the actual amount of good hay taken from a stack may show a considerable loss above what has been due to the shrinkage in the weight of the hay. It appears that the amount of moisture retained in cured hay when stacked varies with the different kinds of hay and the different conditions of curing, but ordinarily the loss in weight of hay stacked when well cured and protected from loss other than that which may occur by natural shrinkage should not be greater than 10 per cent.

Other fodders may shrink in weight more than hay made from the perennial grasses, clover, or alfalfa. For instance, in the experiment at the Kansas station cited above, millet showed the greatest decrease in weight after it was put into the mow. The shrinkage, however, of any fodder will depend largely upon the stage or condition of curing in which the fodder is stacked. An experiment is reported from the Connecticut Experiment Station in which thoroughly cured corn-fodder, showing a water content of 27 per cent when put into the barn November 11, had actually gained in weight when taken out February 8.

Potatoes.—With reference to the shrinkage of potatoes after the tubers are dug, no experiments have been made at this Station, and I can find no published records of experiments in this line. The difficulty in this climate and in the States further south is to keep the tubers at all for any length of time after digging. The general recommendation to the southern potato grower is to plant early varieties and to harvest the crop as early as possible and ship the potatoes to market at once. If the tubers are kept for any length of time in the hot summer, they are almost sure to rot, whatever method of storing is practiced.

In the northern states where potatoes are dug late in the fall after the weather has become cool, the tubers may be placed immediately in pits and properly covered so as to prevent the circulation of air and yet not keep the potatoes too warm. There should be but little loss in the weight of the tubers during the cool part of the year; as soon, however, as warm weather begins the potatoes will sprout, when they rapidly lose in weight. In a northern climate, if potatoes are stored in a cool, dark cellar, it would seem that they should not shrink much until they begin to sprout in the spring.

When potatoes are stored in a warm room or where they are subject to too great ventilation the tendency is to draw out the moisture and quickly cause the potatoes to wilt and shrink in weight, but I have no figures to show what this shrinkage may be for different intervals and under different conditions. Potatoes should always be stored in a dark place, since sunlight or diffused light quickly changes the composition of the potato, destroying its flavor and food value.

It appears that even in the Northern States and in the climates best adapted for growing potatoes experienced potato growers favor marketing the crop as soon as possible after digging. In his little book entitled "Money in Potatoes," Mr. Tuisco Greinier, the great New York potato grower, gives this advice: "Do not put off marketing the crop longer than necessary, the loss from shrinkage and rotting, and sometimes from freezing, is much

greater than is generally supposed, and the labor caused by repeated handling, sorting, sprouting, and storing is considerable. In short, I would rather take 50 cents for a bushel right from the field at digging time than a *probable* 75 cents at the beginning or in the midst of winter, or \$1.00 in the spring."

In the Southern States it is now becoming the practice to grow a "second crop" of potatoes, which is dug late in the fall. The tubers from the second crop may be successfully kept through the winter and furnish seed for planting the following spring. Where this practice is not followed the potato grower of the South is obliged to import northern grown seed potatoes every year for spring planting.

A. M. TEN EYCK.

### The Poultry Show.

The Dairy Husbandry Department of the College has made arrangements for another general poultry exhibition, to be held here on December 12 to 16, and as in former years the merchants and business men of Manhattan, and other parties have promised prizes for high-grade birds. The following have been donated:

A. J. Whitford, merchandise\$	-	00
Wm. Stingley & Company, merchandise	100	00
S. C. Orr, photos		00
A. N. Blackman, ham		60
Guy Varney, books		00
Star Grocery Company, merchandise	-	00
Rube Lofinck, books	**	00
Southern & Wahl, rocker	10	
Allingham & Beattie, bacon		00
R. V. Dyer, picture		50
H. S. Willard & Company, merchandise		00
Blue Valley Foundry Company, merchandise		00
Mrs. J. L. Bardwell. stand cover		00
The Big Racket, merchandise	5	00
Shultz Bros., pail lard	-	00
C. G. Anderson, magazine		00
P. C. Hostrup, box cigars		00
Moore Bros., pair blankets		00
Fielding & Sons, three bushels sweet potatoes		25
D. E. Deputy, cash		00
Engel Bros., saw, axe and buck	3	00
Geo. B. Harrop, perfume		00
H. T. Rathbone, hall lamps	7	00
L. R. Brady, oil heater	10	00
Bohgren & Holt, picture and dish	4	00
Ike Holbert, box cigars	2	00
A. M. Story, cash	2	00
John L. Coons, suit of clothes	10	00
The Smith of Ciothes.	10	00
The Smiths, silver cup.  J. O. Hamilton, cash	5	00
J. O. Hamilton, cash	3	00
H. L. Wolf, photos	1	00
Model Laundry, work	10	00
W. S. Elliot, clothing	2	00
Paddock & Son, marble fountain		00
The Carl Engel Drug Company, poultry food	1	00
Manhattan Steam Laundry, work		

S. A. Perry, coupon to apply on pions		
S. A. Perry, coupon to apply on piano		
Western Poultry Boying advertising on plano	15	00
Western Poultry Review, advertising	10	00
	10	00
	10	00
	10	00
	7	50
	15	00
	10	00
	10 (	00
	5 (	00
First National Bank, cash. W. J. McBride incubator	10 (	00
	14 (	00
	10 (	00
Mrs. O. W. Holt, hat	4 (	00
	10 (	
Manhattan Milling Company, flour.  M. L. Hull & Son merchandisa	10 (	
M. L. Hull & Son, merchandise.  E. L. Knostman overcoat	5 (	00
E. L. Knostman, overcoat  Frank Knakal, a sack sugar	10 (	
	5 5	50
F. H. Dale, incubator  Roberts & Ottowa, gold-headed umbrolls	14 (	
Roberts & Ottowa, gold-headed umbrella	7 5	60
	5 0	
E. J. Davies, cash Union National Bank, cash	2 0	0
	0 0	00
	5 4	
C. E. Gribble, hunger cure	1 0	1.00
Amos Gallery, photos. Sure Hatch Incubator, 60 org. incubator.	2 5	0
M. M. Johnson Old Thursty incubator	0 0	
M. M. Johnson, Old Trusty incubator.  Hiawatha Company incubator.	2 0	
Beliable Company incubator	8 0	
Reliable Publishing Company and	8 0	
Mrs. Pinkerton Company, subscriptive	3 0	
Pratt Company poultry food	4 0	
Poultry Association cash	4 0	
	0 0	()
Total	4 1	5

Parties wishing to make additional donations should address the secretary, W. A. Lamb.

With banners flying and coaches decorated with purple festoons, six hundred College students and Manhattanites went to Lawrence, Saturday of last week, to witness the football game between the College and the State University. Our boys were defeated—it was the second Waterloo of the season. On Thanksgiving day a game was played at the Manhattan field in which they met the team of the State Normal School and came out victorious. At the same time our second team played the second team of the State Normal School, in the Emporia arena, and defeated them also. Nobody was hurt in any of the games and the "Farmers" behaved splendidly. As the Thanksgiving game closes the season, we wish to say publicly that the College never had braver, better-disciplined and better-behaving teams in the field and we feel like congratulating coach Ahearn for his effective educational work. Do it again!

### THE INDUSTRIALIST

Published weekly during the College year by the Printing Department of the

### Kansas State Agricultural College

Manhattan, Kansas,

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### Local Notes.

The Experiment Station has recently bought a new one-horse-power "Bullock Motor" for running the cereal grinders.

The College Rooters' Club entertained the visiting football team of the State Normal School on Thanksgiving night, in Kedzie Hall and in the Girls' Gymnasium.

The Domestic Science Department has just supplied to the Chilocco Indian School a teacher of domestic science. Miss Helen Kernohan, '04, was suggested and has been employed at a salary of \$660 per annum. This is a government position.

Freshman Walter Gish, a son of Mr. and Mrs. J. E. Gish, died last Monday at the Gish home on Sunny Slope farm northeast of the College. Walter was a bright student and a favorite among his classmen. On account of the young man's death, the flag was floating at half-mast Tuesday.

The ideal home, its structure, furnishing, and care, together with the expenditure of income for household purposes, has been considered the past eight weeks by the senior young women of the Domestic Science Department. Woman's mission in the home and her relation to the other occupants of that home will be covered by lectures between this time and the Christmas vacation.

The Co-operative bookstore and several stores in the city have lately been selling a very neat and appropriate watch fob for College students. It consists of a bronze medallion bearing the initials of K. S. A. C., suspended on a black or tan leather ribbon. The design for the fob is the work of Mr. B. Anderson, the proprietor of the city harness shop, who had them made to give students a chance to wear a suitable memento of the great technical school of Kansas. The medallion can also be bought in the form of a breast-pin.

President Nichols attended the Thanksgiving session of the North Central Kansas Teachers' Association, at Junction City, and spoke on "Agricultural Education." Professor McKeever delivered an address before the Golden Belt Teachers' Association, at Hays, and Professor Kammeyer lectured before the Middle West Kansas Teachers' Association, at Smith Center. Several professors and assistants attended the session of the Kansas Academy of Science, at Lawrence, on Friday and Saturday. Asst. Theo. H. Sheffer read a paper on "Additions to the List of Kansas Arachnids," and Asst. R. H. Shaw spoke on "A Chemical Study of the Lime-and-Sulfur Dip."

### November Weather Report.

The weather at the Kansas State Agricultural College for November, 1905, was marked by an unusual rainfall, by the amount of clear weather, and by temperature and barometer variations.

The mean maximum temperature for the month was 59°, the mean minimum, 32.3°; with a daily mean of 40.7°, being .1° below normal. There have been 24 colder and 22 warmer months recorded since 1857. The lowest temperature for the month was 10°, on the 30th; the highest, 73° on the 13th. The lowest November temperature recorded for the last 47 years is minus 9° on November 27, 1887; the highest, 96° on November 2, 1867.

The mean barometer for the month was 28.92 inches, which is .08 inches above normal. The highest barometer for the month was 29.50 inches, on the 30th; the lowest 28.20 inches, on the 27th, the low barometer coming just ahead of the blizzard of the 28th and 29th, while the high barometer followed it.

The rainfall for the month was the heaviest on record, being 3.6 inches, or 2.3 inches above normal, of which 1.55 inches fell on the 5th. There were 20 clear days, 4 partly cloudy, and 6 cloudy, rain falling on 5 days of the month, with a trace of snow on the 29th. The heaviest November snowfall recorded was 11.5 inches, in 1874.

The total run of wind for the month was 6030 miles, being 777 miles below normal, the highest run in 24 hours being 435 miles on November 29. Daily mean velocity, 201 miles; hourly mean, 8.37 miles.

Wheat is in splendid condition.

### Poultry Show at Manhattan.

The Kansas State Agricultural College Poultry Show Association holds its annual exhibition at Manhattan, December 12 to 16. This organization was formerly known as the Western Poultry Association, but changed its name when the College put up the guarantee for the show and agreed to supply the place of meeting.

The coming show will be under the auspices of the Dairy and Animal Industry Department of the Kansas State Agricultural College. Prof. Oscar Erf, head of the department, is chairman. Other officers are: C. C. Smith, Manhattan, manager; W. A. Lamb, Manhattan, secretary. Thos. W. Southard, Kansas City, will act as judge.

The State White Wyandotte Club will hold its annual meeting at this show. The recent egg-laying experiment, conducted by the Dairy and Animal Industry Department, was arranged for by this club. The competition lasted one year and was completed October 31.

The entries in some classes, at the show held here in 1902, were the largest of any poultry show in America, having come from six states. It is expected that this year's exhibition will exceed all others in extent. About \$600 in premiums will be offered, some worth \$15.00. A silver cup sweepstakes will be awarded

the highest scoring chicken in the show, subject to usual handicap. Besides the usual visitors it is expected that a thousand students

from this and nearby states will attend.

The rules governing the show are as follows: Entries close 9 A. M., Tuesday, December 12. All exhibits must be in show room by 4 P. M. December 12. Entry fee, 25 cents each bird; no extra Birds entered for score only, 10 cents each. fee for pens. fowls must be marked with leg-bands and entered by number of blanks furnished by secretary. Fowls may be shipped express prepaid direct to W. A. Lamb, secretary, Manhattan, Kan. Entry fee to be paid at time entry is made. The College will get all birds from express office, give them the best of care, and return same to owners at close of show, but assumes no responsibility for loss Fifty uniform coops will be furnished at a cost of 25 cents each for exhibitors not having coops. There must be four entries in each class or all cash premiums will be withheld. account of early date of show, one pound will be allowed on weight.

Competition will be open to the following: American class, including Barred Rocks, Buff Rocks, White Rocks, White Wyandottes, Buff Orphingtons, Rhode Island Reds; Asiatic class, including Light Brahmas, Dark Brahmas, Buff Cochins, Partridge Cochins, Black Langshans; Mediterranean class, including Single Comb Brown Leghorns, Rose Comb Brown Leghorns, Single Comb White Leghorns, Rose Comb White Leghorns, Buff Leghorns, Black Minorcas. In the miscellaneous class will be included bantams, ducks, and turkeys. The College will exhibit in competition some of its White Leghorn, White Wyandotte, Ply-

mouth Rock, and American Red poultry.

A further "Utility Exhibit" will be conducted, with slaughter tests of various fowls. White and brown eggs are to be judged as to quality and appearance, including per cent yolk, per cent white, viscosity of white, cleanliness, uniformity of color, evenness of shape, and uniformity of size.

A banquet will be given the officers and exhibitors at the Hotel

Gillett on the evening of December 16.

Professor Kinzer has about completed the rearrangement of the main floor of the old stone barn, on which he has been at work for several months. The north wing has been transformed into a horse barn, with four box stalls and eleven stalls for work horses. The south wing has been ceiled and changed into a room for stock judging and poultry exhibitions. The stalls are well arranged, properly ventilated, well lighted, and dry. All exposed woodwork is of white oak to prevent the horses from gnawing. Heavy wire screens separate the upper parts of the stalls of the work horses. A watering-trough has been provided near the center of the barn and a roomy harness closet has been built near it. The whole arrangement is hygienic, practical, and neat, and a credit to the professor.

### Alumni and Former Students.

Born, Monday, November 20, to Mr. and Mrs. F. L. Schneider, of Albuquerque, New Mex., a daughter.—Nationalist.

Mr. Schneider is a member of the class of 1902 and Mrs. Schneider was Miss Frankie McCreary, a former student.

H. McCaslin, '01, visited the College this week. Even during his short absence he finds that many of the Faculty of his time have gone and much has been added to the College in buildings and equipment. He completed the law course in Leland Stanford, Jr., University and will soon take the examination for admission to the bar of this State.

Ula Dow, '05, is enjoying her work in domestic science at Framingham, Mass., very much. In addition to teaching a regular practice class of eighth-grade students in domestic science, she is teaching chemistry to a class of nurses and enjoying it immensely. She expects to hear four lectures in chemistry by Professor Ostwald in January.

Arrangements have been completed for the following farmers' institutes: The Central Branch series are to be held in conjunction with the Agricultural Department of the Missouri Pacific railroad, having the use of a beautiful exhibit car which is in charge of Mr. S. R. Young, the agricultural agent. This method allows him to study the local situation from the company's standpoint, and it allows the College men not only to get well acquainted with the people but to help perfect regular institute organizations where such are not already in existence. The Central Branch series will begin on Monday and is dated as follows: Lenora, December 4; Kirwin, December 5; Gaylord, December 6; Beloit, December 7; Mankato, December 8; Jamestown, December 9; Clyde, December 11; Washington, December 12; Blue Rapids, December 13; Goffs, December 14; Whiting, December 15; Effingham, December 16. The Southern Kansas series will begin on Tuesday and is dated: Mulvane, December 5 and 6; Hackney, December 6 and 7; Rome, December 7 and 8; Caldwell, December 9; Anthony, December 11 and 12; Kingman, December 13; Castleton, December 14; Newton, December 15 and 16. eral series of institutes will probably be held during the holiday Announcements will be made next week. The Central Branch series will be in charge of Prof. O. Erf and Mr. J. H. Mil-The Southern Kansas series will be conducted by Prof. A. M. Ten Eyck and Assistant G. C. Wheeler.

# INDUSTRI Historical Society

Vol. 32

No. 12

ISSUED WEEKLY BY

Kansas State Agricultural College Manhattan



PUBLISHED BY
PRINTING DEPARTMENT
J. D. RICKMAN, Supt.

Entered at post-office, Manhattan, Kan., as second-class matter. Act of July 16, 1894.

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# THE INDUSTRIALIST.

VOL. 32.

MANHATTAN, KAN., DEC. 11, 1905.

No. 12

### Farmers' Institutes in Kansas, 1881-1905.

THE present system of farmers' institutes was organized by Pres. Geo. T. Fairchild in 1881. President Fairchild had been intimately associated with the farmers' institute work of Michigan and thoroughly appreciated its value to the farming population. The following article appeared in the INDUSTRIALIST, November 26, 1881:

The proposition to organize a series of annual institutes, through which the State Agricultural College and the farmers of the State may work together for the promotion of agriculture, has been received with favor upon all sides. To bring the matter into more definite shape, the following statement is made by the authorities of the College:

The professors will, under the direction of the board of trustees, take part in six farmers' institutes, in as many portions of the State, provided sufficient encouragement is given by application from local organizations.

Any farmers' club, grange, or similar organization making application should undertake to provide a suitable place of meeting, make all necessary arrangements for gathering those interested, meet all local expenses, and furnish at least one-half the papers and addresses. The program may be arranged after consultation with the Faculty.

The institute should be organized on the evening of one day, and closed on the evening of the next day, giving four sessions of from two to four hours each. Pains should be taken to call out full discussions of the various topics presented, so that the practical experience of farmers may be truly presented. Every question has its many sides, and is better understood when carefully considered in all of its bearings. All are but learners in this wide field of research, and may profit by each other's experience.

The local press should be interested in the institute so far as to aid in circulating notice of the time, place, and exercises, and to give a careful report of proceedings and papers.

The subjects selected should be of the most practical importance to farm work and general profit. The long-disputed question of the origin of chess, and similar topics, are better left to the doctors to settle among themselves, while, as progressive farmers, we seek to find the shortest and surest way to profitable farming. The discussions which make farmers richer in experience by comparison of every-day facts in their life will surely bring profit to the business they follow.

The best time in the year for these institutes seems to be between the middle of January and the middle of February. At this time the farmers are most likely to find leisure to attend such a gathering; the results of the

past year's work are settled; and the plans for a new season give added interest to any new facts or methods which may be presented. It is the time when all minds are most awake from the reading and thinking which fill the long winter evening.

Now let all the live clubs, and other organizations of farmers, stir this question to the bottom; and, if possible, bring the system into full operation the present winter.

The board will endeavor to choose among the applications in such a way as to accommodate the greatest number this winter, with a view to reaching all parts of the State during a series of years.

Applications should be sent to President Fairchild at as early a date as possible. Who will be the first to take up the proposition?

In the Industrialist for March 25, 1882, an article by President Fairchild appeared, from which the following is extracted:

The successful inauguration of a system of Farmers' Institutes, to be continued in different parts of the State from year to year, is worthy of passing notice.

Since the middle of January, members of the Faculty have taken part in six such gatherings, besides those held annually, as heretofore, in Manhattan. In this, we have met the prominent farmers of Clay, Cloud, Osage, Barton, Jackson and Coffey counties in frank and free discussion of the facts and conclusions from every-day experience in farming. The professors entered upon this work from a desire to come into more intimate relations with the men engaged in farming all over the State, expecting to learn, from the varied experiences of so many, quite as much as they could teach from their own experience and research. In this they have not been disappointed; and all are grateful to those whose energetic efforts in the various localities have brought such gratifying results. Although the work has been added to burdens already too heavy from many and large classes, the professors have been cheered in it by the hearty reception given to these first efforts to organize a means of common culture and progress in methods of farming. All feel ready to undertake a similar course another winter with the expectation of still better results in better organization and methods and a wider reach of influence.

This winter finds six counties aroused somewhat to the thought that farmers can learn from each other's experience, and, in most of these, organization for promoting such gatherings at intervals varying from a month to a year. The questions discussed are such as any farmer of good sense is able to make more interesting by some fact of his own experience, or some conclusion from many facts. Now and then an address from some one whose opportunity for study or observation has been greater than ordnary may enliven the gathering and stir up new and more profitable thoughts in the same class of subjects. In those directly connected with the College, the subject of education must naturally have some prominence: and, in every such gathering, the object of which is a clearer understanding of our business, this must be an interesting topic. But all debates upon questions of State or National policy, not directly bearing upon farming, have been ruled out. This is proper, as uniting those of the same profession without regard to any outside interests. From these gatherings so auspiciously started, all may expect good results, and that almost immediately.

Now, for the next winter, it is proposed to select six more counties from among those which apply first and can be readily reached, and to hold in them better institutes than the good ones of the first winter—better because experience will help to better method. In these we hope to find our former friends ready to furnish their full share of topics and discussions; and to use, with our help, the fullest means of advertising their entertainments. The College will furnish, as in the past winter, three or more speakers and pay their expenses, but will insist that each institute make provision for at least half the speakers from among those interested in the immediate locality. The professors will try to select topics of most interest in the several counties; and hope to make their treatment of these subjects strictly applicable to the practice of farmers. At the same time, they will ask the fullest possible illustration and inquiry that experience of others can suggest. We want not so much to shine ourselves as to bring out the light from all who now hide it under their own bushels.

The ideas presented in the above quoted articles still represent the standpoint of the College toward this work. The idea is to help those who are helping themselves, rather than merely to address meetings of farmers assembled to listen, valuable as the latter class of meetings is.

Up to 1890 the expense of farmers' institutes was met by appropriations made by the Board of Regents from the income fund. The cost varied from one hundred twenty-three dollars to four In 1899 the legislature made hundred ninety dollars per annum. an appropriation of two thousand dollars for each of the next two fiscal years, and this has been repeated by the two legislatures Two years the amounts expended exceeded the appropriation, while the other years a balance has reverted to the These appropriations have greatly increased the num-The largest numbers were held in the ber of institutes assisted. fiscal years ending June 30, 1900, and June 30, 1901, namely one hundred thirty-four and one hundred fifty-six, respectively. These large numbers were made possible by arranging class work so that the members of the Farm Department were entirely free from teaching duties during the fall months, and speaking tours were arranged for them largely under the patronage of creamery companies. In this way more meetings were held, but they were to a greater extent of the character in which the local population did not contribute to the program excepting by participation in discussions. In the latest years the increase in students, and, consequently, in the number of classes to be handled, has become a greater and greater burden upon the teachers, and this has reached a point where the farmers' institute work cannot be extended or even maintained without additions to the teaching force. While no requests for institutes have been declined where the people themselves were preparing a program, efforts to extend the work and encourage organization of institutes have not been made, or to a very slight extent. If the College and Station force were of sufficient numbers to permit it, there is no doubt that the institute work might be enormously extended on short notice, especially if it were to a large extent transformed into a series of speaking tours in which the people of the localities visited participated only as listeners or as questioners. There can be no doubt, however, that an institute to do the most good must be one which trains and develops the talent of the people of the locality, enabling them to help each other, since however capable a speaker from the College may be he must lack to some extent the knowledge of local conditions that is necessary to make advice of the highest value.

The legislature of 1903 passed the following law:

#### AN ACT

RELATING TO FARMERS' INSTITUTES.

Be it enacted by the Legislature of the State of Kansas:

SECTION 1. Whenever any county farmers' institute association in this State shall have elected president, vice-president, secretary and treasurer, and adopted a constitution and by-laws for its government, it shall be the duty of the county commissioners of such county to appropriate annually the sum of fifty dollars, or so much thereof as may be necessary, to defray the legitimate expenses of a two-days' institute at such place in the county as may be designated by the executive committee of the institute association; provided that this act shall not apply to institute associations that have not been in successful operation at least one year.

SEC. 2. This act shall be in force from and after its publication in the statute-book.

It will be seen that this act recognizes the value of continued activity in this respect, and requires a demonstration of earnest intent, as shown by the maintenance of an organization for at least one year before public funds can be drawn upon for its support. With such an earnestness of purpose, and with ample financial aid thus provided, any county in the State can maintain a successful and highly beneficial organization.

The number of institutes held within each of the several years is shown below:

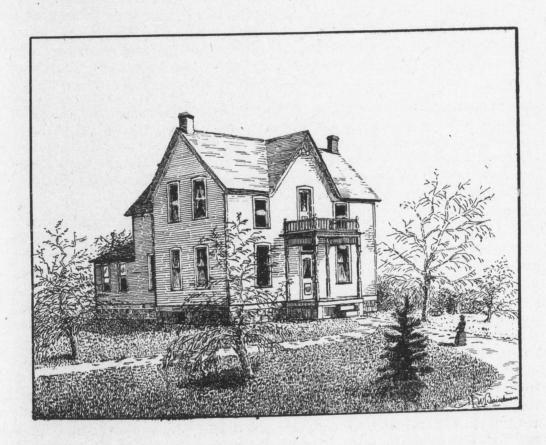
1881-'82	1890-'91
1882-183	1890-'91
1882 184	1890-'91
1003-04 7	1891-'92 1892-'93 1802-'94
1004-700	1892-'93
1885-'86	1893-'94
1886-'87	1094-99 22
1887-'88	1894-'95
1888-'89	1895-'96
1889-190	1896-'97
4000- 80 8	1897-'98

1899-'00134	1902-'.03	88
1000.701	1903-'04	98
1901-'02	1904-'05	55

This brings out the history of farmers' institutes in this state down to the current year, and as this is marked by certain changes in the management and nature, notably by the introduction of institute trains, the time seems to have been opportune for the accounts given in the three articles of which this is the last.

J. T. WILLARD.

The accompanying picture is printed from a pen drawing by H. W. Brinkman, a junior student in the architecture course. The drawing represents a farm house which the student built last summer from his own plans and specifications for W. Schultz, a farmer near Olpe, Lyon county. It was drawn as a regular class exercise from the floor plans and elevations of the building, with the land-scape added from memory. Other class exercises of this kind will be published in the Industrialist from time to time.



#### THE INDUSTRIALIST

Published weekly during the College year by the Printing Department of the

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#### Local Notes.

Professor Potter lectured last Tuesday night before the Manhattan Commercial Club on "The Political Conditions of Russia."

The Department of Physics and Electrical Engineering has just received from the Wm. Crocker Laboratory a new radium spinthariscope.

Ethel Alexander, second-year student in 1903, returned this week from Selma, Iowa, where she has been teaching for a year. She intends to enter College and complete her course.

President Nichols was at Lindsborg and Salina last Monday and Tuesday with the State Board of Education, of which he is a member, making official visits at the colleges of these places to inquire into their facilities for educating teachers.

The annual meeting of the Manhattan Horticultural Society will be held at Horticultural Hall, on Thursday, December 14, at 3 o'clock, at which time officers will be elected for the ensuing year and delegates appointed to the meeting of the State Horticultural Society.

The next annual meeting of the National Association of Agricultural Colleges and Experiment Stations will probably be held in San Francisco or Los Angeles. This adds another to the list of large educational bodies that are to meet in California next year, the National Educational Association and the Associated Alumni gathering being already assured.

The thirty-ninth annual meeting and fruit display of the Kansas State Horticultural Society will be held in the rooms of the society in the State Capitol, at Topeka, December 26, 27, 28. Popenoe is on the program for a report and Professor Dickens will discuss "The Ideal Plum and How to Grow It." The program is full of good things. One hundred dollars has been set apart for awards on exhibits of fruit. The exhibition is not competitive, and every exhibit of merit will receive an award. formity will require that five (no more, no less) specimens shall constitute a plate of apples, pears, peaches, or quinces; nine specimens of crabs and plums; grapes, one pound. Displays by coun ties, societies or individuals may include all, not duplicates, which they exhibit, whether already awarded a premium or not. served and dried fruits, or preparations of fruit, will receive the attention of the committee. New fruits of value, noted varieties, or those of peculiar excellence, from anywhere, will receive awards of "Special Merit," or "Honorary Mention." New varieties will be specially classed and distinctly and separately reported upon.

The Dairy and Animal Industry Department of the College is making extensive arrangements for the poultry exhibition which will be held December 12 to 16 in the College barn. The south wing of the building has been ceiled and fitted up for this purpose and efforts are being made to make this the best exhibition held at this place. The Western Poultry Association changed its name to the Kansas State Agricultural College Poultry Show Association when the College put up the guarantee for the show and agreed to supply the place of meeting. Prof. Oscar Erf, head of the department, is chairmen. Other officers are: C. C. Smith, manager; W. A. Lamb, secretary. Thos. W. Southard, Kansas City, will act as judge. Parties who wish to exhibit birds or pets are asked to make early application for space.

The auditor of State, Seth G. Wells, has ruled lately that all advertising done for the State educational institutions hereafter will have to be done in the official State paper or in the official papers of the institutions. This will deprive the institutions of much advertising, which they have scattered to Kansas newspapers in the summer months. It is estimated that the State University, the State Agricultural College and the State Normal School, the institutions affected, have been spending nearly \$3,000 every year for advertising. The advertising hereafter will be paid for out of the fund appropriated by the legislature for the use of the State printing commission in paying for official publications. Mr. Wells holds that the new printing law makes provision for all of the public printing that may be done in the newspapers.

Item from the Garnett Eagle-Plaindealer: "The professors of the State Agricultural College have been making a tour of the State talking to the farmers on various subjects connected with practical farming and fruit raising. The idea is a good one. farmers and fruit growers have been benefited and probably the professors know a few things they didn't know when they started. An orchard owner from Reno county tells us that the visit of the professors will be worth a great deal to the fruit raisers of that Reno county has a million apple trees and should produce not less than five million bushels of apples per annum. amount would have been produced this year if it had not been for the codling-moth, which reduced the crop by probably seventy-five The codling-moth is an industrious female of great fecundity and persistence. Her life is short, but during the brief span of her existence she manages to do an immense amount of The professors at the Agricultural College have ascertained by careful experiments that the codling-moth can be cleaned out by careful and persistent spraying and told the farmers and fruit raisers of the State how they have done the business. The benefit of such experiments as the Agricultural College has been making can hardly be calculated. It is safe to say that the direct benefit of the trip that the members of the Faculty are making right now will exceed a million dollars on next year's crop."

This College was represented at the annual meeting of the Kansas Academy of Science, at Lawrence, last week, by Professors Willard, Popenoe, and Roberts, and Assistants Wood, Shaw, Scheffer, Watkins, and Miss Weeks. Several students were also present.

A. F. Turner, '05, writes to Professor Kammeyer from Norton, where he is teaching agriculture and related branches in the high school, that he has taken the professor's advice given to the College class in civics by organizing a "legislature." He sends a copy of the agricultural course of study, from which we judge that they are preparing to do practical work at Norton.

Director L. H. Bailey, of the Agricultural College of Cornell University, N. Y., has asked Prof. Henrietta Calvin, of this College, to deliver a course of lectures on domestic science at his institution next winter. Knowing that the chair of domestic science at Cornell is vacant just now, and that they are looking for a mature and experienced professor, we are afraid that her acceptance of the director's request might result in a transfer of the vacancy to Manhattan, and we advise Mrs. Calvin to refuse it at once for the good of her five hundred bright and happy Kansas students.

#### Alumni and Former Students.

Nellie W. Baird, '05, of Marquette Kan., spent last week visiting College and Manhattan friends.

Wallace Baird, '04, and Alma Randall, sophomore in '02, were married at the bride's home in Bala, on November 30. They will be at home on a farm near Bala.—Students' Herald.

Roland McKee, '00, who has been doing postgraduate work in horticulture here for a year and a half, has been elected assistant horticulturist of the Maryland Experiment Station, and will enter upon his duties January 1.

V. L. Cory, '04, has been transferred for the winter from Mc-Pherson, Kan., to Modesto, Cal., where he is in charge of the Cereal Experiment Station. Mr. Cory is scientific assistant in the Bureau of Plant Industry, United States Department of Agriculture.

Among the visitors in Manhattan during the Thanksgiving vacation were: Roger Thompson, W. J. Wilkinson, J. G. Chitty, C. F. Johnson and W. K. Evans of the class of '05; K. P. Mason, '04; Roe Trobert and Carl McKeen, former students, and R. W. Greene, senior in '04.

E. H. Perry, '86, of Oklahoma, Okla., with his partner, has contracted to take charge of the town-site business of the new railroad to be built from McKinney, in northeastern Texas, to Roswell, New Mexico. They will also have charge of the sale of the million acres of land granted the new road. Mrs. Ada (Quinby) Perry, '86, has been visiting relatives and friends in Manhattan the past week.

Ben R. Brown, third-year student in 1900, under the stage name of "Harry Hoyt" appeared in Manhattan last Tuesday evening in the "Royal Slave." Mr. Brown's singing and acting in that connection were very much enjoyed by all who heard him, and especially by his old friends.

R. A. Carle, '05, writes from Turtle Creek, Pa., for the Industrialist. He and his classmate, R. A. Fulton, seem to be having an interesting time studying the topography and natives of the country. Mr. Carle's State pride seems to have been touched by the fact that his landlady had thought that Kansas was an island in the Pacific ocean. No wonder that he wants to be back where his State is appreciated.

H. V. Forest, '00, was married on Thanksgiving Day at the residence of the bride's parents, Thayer, Kan., to Miss Edna Bearmore. Miss Bearmore is a charming and accomplished young lady, a graduate of Knox Conservatory of Music. Mr. and Mrs. Forest visited the College on Monday on the way to their home at Lyons, where Mr. Forest is managing the Lyons Electric Company. He reports that the Company is meeting with unqualified success.

The *Ohio Farmer* has issued an attractive pamphlet announcing some of the things that it will contain in 1906. Among the special features will be an article by Ivy Harner, '93, of Purdue University, on "Domestic Science Instruction in Foreign Schools." She will also contribute articles on various matters pertaining to the household. J. T. Willard, '83, will furnish an article on "The Balanced Ration." The *Farmer* has constantly been a most enthusiastic advocate of the method of balancing rations explained in Bulletin No. 115.

We have an interesting letter from Charles Henry Thompson, '93, of the Missouri Botanical Garden, St. Louis. He envies the situation of the Kansas City alumni who have so many brothers and sisters near them, while only three live in St. Louis. Since September 19 he has been learning to appreciate all the jokes perpetrated about the first baby. Theirs is a little girl who will answer to the call of Frances Clarinda. Mr. Thompson recently met Anna (Turner) Bruce, '89, whose husband is a prosperous railroad man. Their children are two fine boys.

At the recent meeting of the Kansas Academy of Science, papers were presented by graduates or former students as follows: Warren Knaus, '82, McPherson, "On Haliptidæ, Dytiscidæ, Gyrinidæ, Hydrophilidæ, Sylphidæ, Elasticidæ and Ptinidæ of Kansas," "Notes on Coleoptera," "Additions to the List of Kansas Coleoptera for 1905," "On Coleoptera of New Mexico, III;" Grace R. Meeker, second-year student in 1882, Ottawa, "A Little Experiment in Flower-making;" Chas. H. Sternberg, Lawrence, "The Loup Fork Miocene of Northwestern Kansas;" and J. T. Willard, '83, with R. H. Shaw, "Some General and Some Special Features of Laboratory Equipment."

#### Improving White Leghorns.

Efforts are being made at the Kansas State Agricultural College to increase the egg-laying capacity of blooded chickens, particularly White Leghorns, by breeding and selection. Individual records are kept of the hens laying the greatest number of eggs per year. The highest scorer's eggs are reserved for hatching. This is continued from year to year.

The Dairy and Animal Industry Department has a large number of White Leghorn, White Wyandotte, Plymouth Rock, and American Red chickens, with which the students carry on various experiments. Settings of eggs not used are sold to farmers. The department now has twenty-five White Leghorn cockerels for sale.

#### Specialization for the Farmer.

It is not so easy to-day to earn a good living on the farm as it was a quarter-century ago. Greater competition and poorer soil have made the professional agriculturist a necessity and scientific farming a reality.

Strictly speaking, farming is not a science; it is a business. But farming depends upon science, and to understand it thoroughly requires a knowledge of physics, botany, chemistry, geology, mathematics, and other subjects bearing on agriculture.

The Kansas State Agricultural College is endeavoring to meet the needs of the young men of Kansas who expect to follow agriculture as a profession. They must understand the soil and the great principles of cultivation, aeration, and soil-moisture conservation. They must know the science of plant growth and propagation, and the chemistry of plant and soil. They must learn the principles of animal nutrition—the use of balanced rations in stock-feeding. Then the animal must be studied that stock may be properly judged when selecting for breeding.

The Agricultural Course, as conducted at Manhattan, may be treated under the subdivisions of agriculture, crop production, and farm mechanics and management.

AGRICULTURE.—This is largely an elementary study of the soil as to its formation, texture, plant-food, moisture, tillage, fertility; of the plant with reference to its relation to soil and climate, its propagation, growth, and cultivation; also of the kinds of crops and their culture; and of the animal as to its life, feeding, breeding, and management.

Crop Production.—Crop production is one of the most important subjects taught students in agriculture. This subject includes the study of farm crops as to the preparation of the seedbed, planting, cultivating, harvesting, storing, and marketing. A careful study is made of each crop with reference to the plant, the root system, and methods of culture specially adapted to certain crops. Under this head is included methods of maintaining soil fertility, rotation of crops, the use of manures and fertilizers, destruction of noxious weeds and injurious insects, and the prevention of plant diseases. Each of the staple crops is taken up in or-

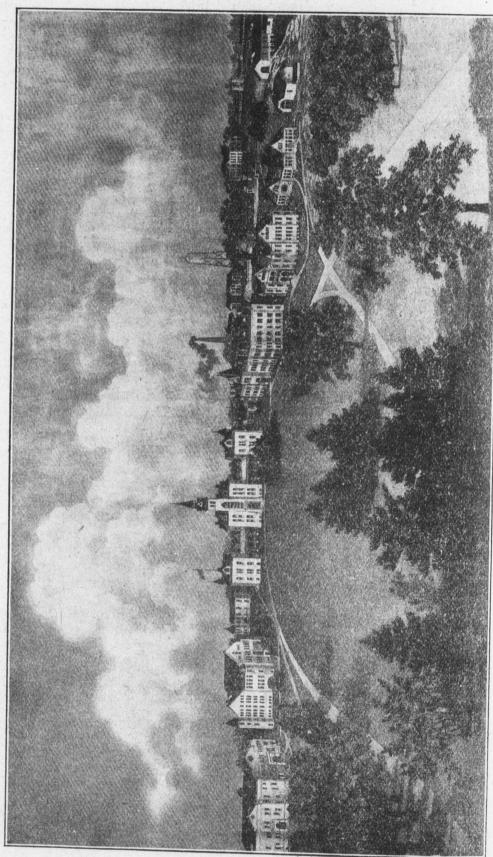
der and its history, characteristics, uses, methods of culture, etc., Crops are also discussed in classes as to their special uses as hay, forage, silage, pasture, soiling, green manure, and cover crops, while new crops are also investigated. All the different crops are grown on the College farm, so that students may see them, or at least see samples in the class room, and thus become familiar with their characteristics, methods of culture, and

handling.

Seed breeding and grain judging are taught as part of the subject of crop production. Special attention is paid to seed selection As an example of a practical application of and seed breeding. the knowlege gained, students are given practice in scoring corn and in the judging of all common cereals according to inspectors' and buyers' standards, or according to recognized standards of perfection. It is surprising how few people can pick out a good ear of corn before being carefully instructed and trained in the vital points both as to desirable qualities and defects. just as important to select and grow a pure or perfect type of corn or wheat as it is to select a well-formed hog or a perfectly formed type of dairy animal for breeding purposes. A higher percent of protein, greater productiveness, and other valuable qualities which may be bred into corn by careful and intelligent selection, should greatly increase the value of this crop to the farmer, and the training received by the agricultural student in this line becomes a valuable possession, both financially and otherwise, when

he engages in the practice of agriculture.

FARM MECHANICS.— The tillage of the soil and the planting and harvesting of the crops, the operation of farm machinery and construction of farm buildings and works, and in fact the larger part of the work of the farm, involves the application of physical laws and principles. Farm mechanics is the name of the branch of study which deals with the larger part of the physical problems of the farm. This is one of the most interesting and valuable agricultural studies. In the introduction to this study some time is spent in reviewing principles in physics, such as the constitution of matter, kinds of force; and such terms as work, energy, machine, etc., are defined and their relation to the mechanics of the Several lectures are devoted to the elements farm established. of machines, discussing the principles involved in the uses of the lever, evener, wheel and axle, pulley, inclined plane, etc. several classes of farm machinery are taken up in their order and studied as to the principles of the construction and use of each machine, and attention is given to the operation, care and repairing of farm machinery and to the building of machinery sheds. On three-fourths of our Kansas farms much of the farm machinery remains out-of-doors the year round. This is a great waste; such machinery not only wears out in one-half the time, compared with machinery which is well taken care of and shedded, but it gives a poor grade of service while in use. In this course the fact is demonstrated that the average Kansas farmer can save thirty-



A General View of the Kansas State Agricultural College.

three per cent on the investment by building a machinery shed

and shedding his farm machinery.

The subject also includes a study of the principles of draft, as related to the horse, the wagon, and the road over which the load is drawn. The construction of roads, drainage and irrigation works also come under this subject, while the various farm motors, as the horse, the tread-power, the sweep-power, the gasoline engine, the steam engine and the wind-mill are made familiar to the student, in their construction, purpose, and the requirements necessary to operate each successfuly.

Rural architecture, or the construction of farm buildings, is also included as a part of farm mechanics, and includes a study of the strength of materials, the plans and specifications for building and the essential factors to be considered in the construction of buildings, such as warmth, light, and ventilation, with reference to the comfort of the animals housed, and handiness and economy

in construction.

There is no study given in the College courses which may offer greater attraction to the student than farm mechanics. As a boy you were always interested in anything with wheels. This is a study of wheels—the wheels that move the machinery of the farm; it cannot fail to attract and interest every young man who expects to follow agriculture as a profession, and there is no more valuable or practical study taught in our agricultural colleges than the subject of farm mechanics.

Included under farm mechanics is farm management. This embraces studies in the selection of a farm, as to location, soil, climate; the relation of farming to other occupations; the farm equipment; various systems of farming; field and crop management; farm accounts; farm economy, as to care of farm buildings and works, fencing, ditching; management and care of stock;

also rural law.

The student is not sent into the fields to plow and harrow, as many suppose. Rather, he is given opportunity to observe the best methods of farm practice and to become acquainted with the underlying principles of agriculture. He is given practice with tools in carpentry and blacksmithing, and in handling stock, in tree-planting and grafting, and with it all gets a general education that makes a man and a citizen of him. The work is intensely practical, but none the less scientific.

The fine fall weather of last week has "boosted" the mason's work on the new granary and the new Horticultural Hall in good shape. The addition to the boiler-house is now waiting for the roof, the granary is well up to the main floor, and the Horticultural Hall has all of its excavations completed. Contractor Stingley, of the latter building, is hauling some very fine dimension rock from the College quarry; it is the finest stone that has ever been found on Bluemont.

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Manhattan, -- Kansas

# INDUSTRIALIST

Vol. 32

No. 13

ISSUED WEEKLY BY

Kansas State Agricultural College Manhattan



PUBLISHED BY
PRINTING DEPARTMENT
J. D. RICKMAN, Supt.

Entered at post-office, Manhattan, Kan., as second-class matter. Act of July 16, 1894.

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### THE INDUSTRIALIST.

Vol. 32. Manhattan, Kan., Dec. 18, 1905.

No. 13

#### Wendell Phillips, the Anti-Slavery Agitator.

NE October day in the year 1835 in the city of Boston a young lawyer was sitting by his office window looking out into the street below. Soon he saw signs of excitement-crowds gathering, people hurrying along in one direction, their faces eager with curiosity or determination. Going into the street and hastening with the throng toward the city hall he saw a respectable-looking, well-dressed crowd of a thousand men dragging another man along the street with a rope around his waist. "Who is that man?" he asked. "William Lloyd Garrison." "What has he done?" "Been trying to hold an abolition meeting." And that in free Boston! In the city of Samuel Adams, the very cradle of liberty! In the very place where the victims of the Boston massacre had reddened the streets with their blood! The sight made the blood of the young man boil within him, and, more than that, it set him to thinking. If the cause for which that disgraceful scene was enacted was sacred enough to induce Garrison to suffer martyrdom in its defense, it was important enough for him to think about. He did think, and the result of his thinking was that the anti-slavery movement gained its most brilliant disciple and its most eloquent advocate. No doubt in after years William Lloyd Garrison felt that it was well worth while for him to suffer the contumely of mob violence for the sake of gaining such a convert. That young lawyer was Wendell Phillips, and that day ordained him to preach the gospel of abolition.

For two years the young disciple kept silent. Then, one December day in 1837, he was present at a meeting in Faneuil Hall, called to consider the attitude Boston should take regarding the murder of Lovejoy at Alton, Ill., for publishing an anti-slavery newspaper. Several speeches were made, expressing indignation and horror at such interference with freedom of speech and of the press. Then in the gallery arose the attorney general, James T. Austin, whose name will go down into history hung in chains for the finger of scorn to point at. He declared that Lovejoy had "died as the fool dieth," and likened his murderers to the men who had destroyed

the tea in Boston Harbor. When this speech was ended Wendell Phillips, then but twenty-six years of age, with the bloom of youth fresh upon him, with the best and most aristocratic blood of Boston beating in his heart, and the best culture of Harvard giving sinew and polish to his mind-Wendell Phillips, who had until that time intended simply to be a listener to others, said to a friend: "Such a speech in Faneuil Hall ought to be answered in Faneuil Hall." "Why don't you answer it yourself?" "I will, if I can reach the platform." Elbowing his way through the excited throng he stood at length upon the platform facing the audience. Outcries, hisses, protests greeted his attempt to speak; but with all the grace of an Apollo and with the calm courage of a Paul before the mob at Jerusalem, he stood his ground. When the tumult had subsided he opened his mouth, and, in a voice sweet as music but penetrating and rousing like the blast of a trumpet, he spoke: "Sir, when I heard the gentleman lay down principles which place the murderers of Alton side by side with Otis and Hancock, with Quincy and Adams, I thought those pictured lips [pointing to the portraits on the wall] would have broken into voice to rebuke the recreant American, the slanderer of the dead." When the storm of mingled applause and protest had sunk into calm he continued: ". . . Sir, for the sentiments he has uttered, on soil consecrated by the prayers of the puritans and the blood of the patriots, the earth should have yawned and swallowed him up." Here the tempest broke out against him anew. Cries of "Take that back! Take back 'recreant!' " were met with cheers and cries of "Go on!" For a time it seemed as if Phillips would be mobbed, but, unmoved by the terror of his position, he stood, not defiant, but calm and serene, waiting for the raging waves to "be still." When they had once more sunk to rest he went on: "Fellow citizens, I cannot take back my words. Surely the attorney general, so long and well known here, needs not the aid of your hisses against one so young as I am-my voice never before heard within these walls." With these words, so eloquent and so brave, began the career of Wendell Phillips as the orator of the anti-slavery movement. Never again would it be said that he was an unknown From that hour he was recognized as one of the most eloquent men of America, and all his great gifts of person, mind and speech he devoted to the cause of human rights.

At about the same time of this Faneuil Hall speech Mr. Phillips married a lady of some wealth, whose fortune, coupled with his, made the young Demosthenes independent of his profession for his maintenance, and also enabled him to accept every opportunity of

speaking in behalf of the liberation of the slave without regard to remuneration. With this anti-slavery idea Mrs. Phillips was in hearty accord, and she was always the inspiration of his course during the hard and often disheartening labors of succeeding years.

Those years were marked by the organization of the Lyceum lecture system which the greatest men of the country made famous. Among those who early gave lectures in these courses Mr. Phillips was very prominent. He had a fondness for scientific and historical subjects and often spoke on these themes, but when he could obtain permission he preferred to speak on abolition, not charging for his services when allowed to present this favorite topic. That he always presented it eloquently and courageously goes without saying. It required courage in those days to speak against slavery, even in the North. The sentiment against the agitation of the question was very strong, and Phillips himself more than once had the honor of having his meetings disturbed and even his life endangered by the mob, which resented his advocacy of abolition.

But public sentiment in Massachusetts, and indeed throughout the North, was growing with marvelous rapidity. The hills of New England furnished fruitful soil and the good seed once sown was bringing forth, "some thirty, some sixty, and some an hundredfold." Phillips and his coworkers were diligent laborers. He was a born agitator and never allowed the question to rest, believing that if he could only keep the people thinking on the sub-

ject they would ultimately arrive at right conclusions.

Like most reformers, the abolitionists became fanatics. They became enthusiasts, extremists, monomaniacs, men of one idea. To them abolition was the supremest duty on earth. It became a passion, a religion. To it all things else must yield. If a church was not ready to commit itself to the anti-slavery movement, that church was apostate. They would withdraw from its communion, and it should be to them as a heathen and publican, against which they were justified in pronouncing their anathema maranatha. Even the Union itself was of less importance than the abolition of slavery. As a consequence of such intensity of vision they were led into many extravagances which a large number of those who sympathized with their main purpose could not accept. For instance, Mr. Phillips himself gave up practicing in the courts where an oath was required of each attorney to support the constitution, which recognized slavery. Soon he went still further and advocated the repudiation of the constitution and the Union

itself. In 1844 he introduced and secured the adoption by the American Anti-slavery Society of the following resolution: "Resolved, That secession from the present United States government is the duty of every abolitionist, since no one can take office under the United States constitution without violating his anti-slavery principles and rendering himself an abetter of the slaveholder in his sin." Thus he and his coadjutors took the same attitude for the destruction of slavery that the slaveholders themselves observed seventeen years later for its preservation. Either party would repudiate the union and the constitution for the sake of sustaining its own position on this burning question. positions held by the two parties were, of course, diametrically opposed to each other. And yet how differently men are accustomed to think of these parties! The slaveholders, who, for the sake of preserving their pet institution, attempted to withdraw from the Union, it has been the fashion to brand as rebels and traitors; the abolitionists, including Phillips and Garrison, who characterized the constitution as a "league with death, a covenant with hell," and declared that they no longer felt themselves under obligations to obey that constituion and would not obey it, we laud as patriots and political saints. The legal and political course of both was to be reprobated. It would be destructive of all society if each man were left to decide for himself whether he should obey the law. Why, then, do men praise Phillips and Garrison while they condemn the secessionists of the South? Simply because of the ethical difference of their purposes. do not approve of the secession sentiments of either; they deprecate the desire to preserve slavery on the part of the South while it is the purpose to destroy slavery on the part of the abolitionists that they laud. The proposed method of each has been largely lost sight of in considering the end in view of each.

The position of Mr. Phillips on the right of a state to withdraw from the Union he held for a long time. In a speech in 1861, after the firing upon Fort Sumpter, he said: "Here are a series of states girding the gulf who think that their peculiar institutions require that they should have a separate government. They have a right to decide that question without appealing to you or to me. A large body of people, sufficient to make a nation, have come to this conclusion, that they will have a government of a certain form. Who denies them the right? Standing with the principles of '76 behind us, who can deny them the right? . . . I maintain on the principles of '76 that Abraham Lincoln has no right to a soldier in Fort Sumpter."

But men thought fast in those days, because events moved fast. Phillips had not desired war for the liberation of the slaves; he had not during the almost quarter of a century during which he had been preaching the destruction of slavery advocated the breaking of fetters by force. His had rather been a battle of mind and conscience. He thought that if he could once get the nation to thinking and could once arouse the national conscience on the question, the abomination would be swept away without bloodshed. But he had made more rapid progress than he sup-The leaven of anti-slavery had spread and multiplied until it had leavened the thought of the land; the doctrine he had so eloquently taught through all those turbulent years had become the faith of hundreds of thousands, North and East and West. When the slave states took up arms against the North Phillips soon saw that the people of the Union regarded this as really a struggle between freedom and slavery and concluded that if the North should win it would be only by the destruction of the accursed institution. When he perceived this, his whole attitude changed and he leaped into the struggle joyfully, confident that the day star of his hope, for which he had waited so long and which till then had seemed so far away, was at last coming to its dawn. Its arising was to be, not as he had anticipated, clear and calm, but in lurid splendor and obscured by thick battle clouds; nevertheless, he saw it, and even though its advent was shrouded with terrors he hailed it with gladness. Therefore, within less than two weeks after the speech alluded to above we find Mr. Phillips addressing a great mass-meeting in Boston. "I rejoice before God to-day," he said, "for every word that I have uttered counseling peace, but I rejoice also with an especially profound gratitude that now, the first time in my anti-slavery life, I speak under the stars and stripes and welcome the tread of Massachusetts men marshaled for war. No matter what the past has been or said, to-day the slave asks God for a sight of this banner and counts it the pledge of his redemption. . . . Steer North or West, acknowledge secession or cannonade it, I care not which, but 'Proclaim liberty throughout all the land unto all the inhabitants thereof." So he had not changed his purpose, that was, as it had been from the beginning, the deliverance of the captive. He had merely changed his idea of how deliverance was to come.

Wendell Phillips was so happy as to see the mighty work of emancipation to which he had as largely contributed fully consummated. He saw the travail of his soul and was satisfied. What more could he wish? The shackles against which he had

struck so many Titan blows had been melted off in the furnace fires of civil war; the slave for whose deliverance he had toiled so long had risen from the dust, stood upright, and ventured to call himself a man. His labors for other causes it is not the province of this paper to relate.

Phillips was a great man. He made mistakes, of course—had he not done so he would not have been human. But the brilliance of his genius, the honesty of his convictions, the unselfish devotion of his labors, the purity and elevation of his character, the unsurpassed splendor of his eloquence and the services he rendered to the cause of the oppressed will make his name illustrious so long as liberty itself shall be cherished among the sons of men.

CLARK M. BRINK.

#### Development of Kansas Live-Stock Interests.

THE growth of the live-stock industry in Kansas has been simply phenomenal. The progress made in this line during the past twenty-five years has probably exceeded that of any other state or territory in the Union. From almost insignificant beginnings but a short quarter of a century ago it is now one of the leading live-stock states of our nation. Once known as a part of the Great American Desert, and but recently referred to as being in the semiarid region of the West, it has been made to blossom as the rose, and where the buffalo formerly roamed we now see herds of pure-bred and improved stock dotting its plains and fertile lands.

During the first few years of the settlement of Kansas but little attention was given by the early pioneer to the question of live stock. The prairie schooner, drawn by its yokes of oxen with the old brindle cow trailing behind, constituted the sole earthly possessions of many of our early settlers. The subduing of the tough prairie sod constituted his earliest endeavors, and it was only after a period of years filled with political strife which ended in the admission of Kansas as a state that our sturdy pioneers began to turn their attention to the subject of stock raising. Of course Missouri was drawn on for what she could spare in horses and cattle. Gradually pedigreed animals began to be brought in, although the leaders along these lines were compelled to withstand much adverse criticism.

It was soon found that these improved animals were especially adapted to our soil and climate, and the Kansas farmer was not slow to take up the question of improvement in live stock. A Kansas man not long since owned a \$5,000 Hereford bull for service on a ranch, and \$22,000 was paid by another for an

imported cow, and while we do not have a very great number of sheep there are a few very fine flocks, and a Kansas four-year-old ram has produced a fifty-two pound fleece, the heaviest year's growth of fleece on record.

The State also stands high in the production of horses and has produced such famous individuals as John R. Gentry  $2.00\frac{1}{2}$ , Joe Patchen,  $2.01\frac{1}{4}$ , Smuggler, Joe Young, and the famous Robert McGregor  $2.17\frac{1}{2}$ , whose son Cresceus for a time held the world's trotting record. The aged champion Percheron stallion, Casino, is also owned in Kansas, and champion mares of the same breed.

During the period when these enormous strides were being made in the growth of our live stock and other industries in Kansas, a college of agriculture and mechanic arts, endowed by the National Government and fostered by the State, was keeping pace in its development with these allied arts and industries. The founders of this institution would scarcely recognize the college of to-day, with its many departments, numerous courses and large body of students. It has been but a few years since the chair of agriculture covered all of the work of this nature. Now we have distinct and coördinate departments devoted to crop production, animal husbandry and dairying. At a recent farmers' institute, a speaker remarked that it took a whole faculty to be a farmer at the Agriculture College.

The Animal Husbandry Department, which is one of the offshoots of the original Farm or Agricultural Department, has become very well known through the State during the past year through the medium of the county and other fairs, many of which have been supplied with expert stock judges by this department. The holding of fairs and shows is a natural outgrowth of the great The desire to have comdevelopment of the live-stock industry. petitive shows between animals of improved breeding is one to be greatly commended. England, the home of most of our improved breeds of cattle, is famous for her numerous shows and fairs, and to this fact may be attributed in no small measure the remarkable results attained there in the development of types and breeds of highly specialized animals. In order to conduct these fairs successfully, it is necessary to have thoroughly competent men to pass judgment on the animals shown; in fact every breeder who attempts to produce animals of pure breeding should be a skilled judge himself. A man who does not know the typical and desirable points of an individual of pure breeding is unable to breed successfully and produce animals of excellence.

Many demands for men trained in passing judgment upon

animals entered in fairs and shows have been coming to the Animal Husbandry Department for the past two years. The fall of 1903 a judge was supplied for one fair; the fall of 1904 five fairs were supplied, two men representing the department, and the past fall seventeen fairs have been visited, six different men taking part in the work. The calls were so numerous that the members of the department were not able to meet them, and young men of the advanced classes were sent; and it may be added that their work has been highly satisfactory to the management of the various fairs. Practical stockmen of the State are beginning to realize that there is something in the training given the young men along these lines. They cannot help but note the systematic and business-like way in which one of these young men goes about his work. Every animal in a close class is given due credit for every point of excellence which it possesses, and the decisions are given only after carefully weighing and comparing the various points of the different animals.

The training given students in stock judging is one of the most important features of the animal husbandry work. The judgment of the student is trained and developed by actual practice in the placing of animals, giving full reasons in writing for each decision. The animals of the College herds are used for this purpose, and while not enough are owned for best results, small herds of very good individuals of the different breeds are now available. This practice work with the College stock is supplemented by frequent trips to the farms of nearby breeders of pure-bred animals. Trips are also made to the American Royal Stock Show at Kansas City, and breeders having stock there have been pleased to submit their animals for practice work. All this makes the work intensely practical, and no breeder can say stock judging is taught from books alone.

Another line of practical work was also undertaken for the first time the past fall by the Animal Husbandry Department, namely, the fitting and showing of some steers and breeding stock. At Topeka the Shorthorn bull Ravenswood Admiration won first place, and at Hutchinson both first and sweepstakes. The Shorthorn heifer calf College Mary, owned and bred by the College, took first at Topeka and second at Hutchinson. At the American Royal Stock Show in Kansas City, four steers owned and fed by the Animal Husbandry Department were exhibited, and also the Shorthorn herd bull and heifer calf, College Mary. With these six entries seven ribbons were captured and \$165.00 in money, one sweepstakes, two firsts, one third, one sixth and one seventh being

taken. These same animals are being shown at the International Live Stock Exposition in Chicago, December 16 to 23.

The showing of stock and visits made to the fairs through the State have undoubtedly done much good in bringing the live-stock men of the State more closely in touch with the animal husbandry work at the College. The most perfect harmony should exist between the man who is out in practical work and the department which is trying to help him solve some of his many problems. More and better stock for Kansas is the motto under which the Department of Animal Husbandry is laboring, and with the hearty coöperation of its many friends among the breeders of the State much good may be accomplished in the high calling which is set before it.

The Douglass Tribune, edited by ex-Regent Satterthwaite, is not far from right when it associates profanity with insanity. It says: "Suppose some seemingly sanctified person should go around the streets uttering audible prayers in the hearing of other people and mixing them up with his conversation. People would call him crazy and would look diligently for an excuse for sending him to an asylum. The general opinion would be that he was daffy. And yet there are fellows by the dozen who in public and in private mix senseless oaths and causeless profanity with their conversation—scarcely uttering a sentence unless breaking it up with cuss words without sense or meaning. Is not this an evidence that the wheels in their heads are not running true, and that the machinery is becoming shackled? Why should the man whose seeming devotion to divinity exceeds good sense and propriety be graded as a lunatic while the numerous fellow who is given to causeless cussing is regarded as all right, only a little rough in his talk?"

The Kansas Farmer for December 14 contains an article on "Some Big Things in Kansas" and signed "I. D. G." From this as well as from the interesting readability of the style we judge that the author is I. D. Graham, for so many years secretary of this institution. The number of things in which Kansas excels all other states or countries is certainly striking. Among these the Agricultural College heads the list, followed by the Branch Experiment Station at Hays. The Kansas Farmer should have this article printed de luxe for general circulation in the East and in foreign countries.

#### THE INDUSTRIALIST

Published weekly during the College year by the Printing Department of the

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#### Local Notes.

The walls of the new granary are nearly completed to the second floor.

The junior girls entertained the boys of the class last Saturday evening in Kedzie Hall.

Prof. E. B. McCormick went to Normal, Ill., last week, called there on account of the death of his mother.

President Nichols went to Blue Rapids on Thursday to join the poultry institute train over the Missouri Pacific railroad.

Assistant Cecilia Augspurger, of the Music Department, received a telegram Tuesday that her father was much worse and left at once for her home in Illinois.

Professor McKeever goes to Lawrence, on December 18, to address the class in journalism of the State University on the "Psychological Aspect of the Newspaper."

Contractor Stingley has made good progress with the concrete work of the new Horticultural Hall this week. If the weather continues favorable the masons will start with the west wall Monday morning.

The Mechanical Department has just completed some storage shelving for the Chemical Department and begun the construction of several tables and some benches to accommodate special apparatus in the quantitative laboratory.

The supply of the annual catalogues of the College being exhausted, President Nichols had an abridged catalogue printed this week, which will be mailed to all who may request it until May, 1906, when the complete edition for the College year will be issued.

Professor Avery, of the chair of chemistry in the University of Nebraska, with Mrs. Avery, visited the College last week, Friday and Saturday. They were much pleased with the institution in general, and the professor found some good things in the Chemical Department that he does not enjoy in his own excellent institution.

The closing examinations of the fall term will be held on Thursday and Friday, December 21 and 22. Winter term will begin Wednesday, January 3. The examinations for new students will be held on January 2 at 9 o'clock A. M. The short courses in agriculture and dairying begin on January 3; that is, together with the regular courses.

The Y. M. C. A. basket-ball team attended the basket-ball tournament at Glasco on Friday and Saturday. They played five games while there, winning one and losing four.

The assignment committee of the Faculty commenced the work of assigning last Monday and were at it all the week. Every student will be assigned for the winter term before he leaves for home.

Mr. George Shofe is putting some fine stone shelving into the balance room of the Chemical Department. This will provide room for twelve or fourteen more balances for the students' use. The shelves are of cut stone and rest on piers which are entirely independent of the building.

The following students from the agriculture course left for Chicago last Wednesday to take part in the corn- and stock-judging contests held there in connection with the annual stock show: R. R. Birch, J. H. Bottomly, W. J. Brown, C. S. Jones, J. S. Montgomery, F. L. Williams, Guy Yerkes. The teams are strong, and conditions are favorable for another victory. Professors Ten Eyck and Kinzer accompanied the party.

Professor Walters has been asked by a leading publisher of Berlin, Germany, to furnish for publication in New York a translation of Dr. Joseph's Geschichte der Ban Runst. The work is being used extensively in schools of architecture all over Europe and is probably the best illustrated work on this subject in any language. The professor has not yet decided to accept the contract. Time is getting to be a somewhat scarce article on his daily program.

The Industrialist seconds the following motion put by the Students' Herald: "This week two teams representing the College are in Chicago competing for prizes in stock and grain judging. One of the prizes rests in Fairchild Hall, and the grain-judging team is working to hold it for another year. The other has never been secured by the College, but the team that is working for it this season is strong and will make a hard fight to win. If these contests mean anything in advertisement for the College, it is surely no more than right that the expense of the teams should be paid. We have been represented by an athletic team this fall and we have gladly supported it both financially and personally. a chance to do a good work and to show to every one that we are willing to back any and all enterprises which we are convinced are for the general good of the College and its students. can testify as to what it means to have forty dollars taken from a pocket that only contains twenty. Most of the boys who are in Chicago are working their way through school, and a little assist ance will be doubly acceptable to them. Several students are going around with papers this week, and every student should subscribe to this fund. The railroad fare is about seventeen dollars, and it is hoped that this amount will be made up for each man on the team." Let's all chip in!

#### Press Notices.

The Agricultural College has received information that the Trans-Missouri Freight Bureau has granted one-half tariff rates on seed and grain from Manhattan, Hays, or McPherson to points in Kansas when accompanied by a certificate of the State authority that the grain or seed is to be used for seeding purposes. This concession on the part of the railway companies is made to encourage the purchase and use of such better bred seed grain as may be obtained from the Experiment Station, the Fort Hays Branch, and the station conducted in coöperation with the United States Department of Agriculture.

The Kansas State Agricultural College Annual Poultry Show selected a week of very fine weather and had a good attendance every day. It is estimated that over four thousand persons attended the exhibition, many of them from distant parts of the There were one hundred twenty coops with nearly five hundred birds exhibited. The College showed eight pure breeds and several cross breeds, also egg types and market types. J. R. Young, of Manhattan, showed several coops of beautiful Barred C. C. Smith exhibited a string of very fine Leghorns. Mrs. Ginette, of Florence, and Mr. I. Merrifield, of Kensington, exhibited different high-bred varieties of Wyandottes. Bros., of Manhattan, had a fine display of home-made incubators, one of which was in operation hatching on Thursday. Mrs. Pinkerton, of Lincoln, Neb., also had an incubator hatch during the The birds were in excellent condition and it was the general verdict of the visitors that it would be impossible to gather a better display of high-grade poultry in any part of the United The fall weather had favorably influenced the general health of the flocks and had kept the plumage in good condition. There were roosters on exhibition valued at from \$25 to \$100 a bird. We shall print a full report of the awards in the next number.

#### Student Stock and Corn Judges.

Agricultural students at the Kansas State Agricultural College, particularly seniors specializing in the Animal Husbandry Department, have acted as judges of stock at seventeen Kansas county and State fairs during the season just ended. These were held at the following places: Belleville, Beloit, Clay Center, Concordia, Glasco, Harper, Hope, Horton, Hutchinson (State fair), Mankato, Mound City, Seneca, Smith Center, Stockton, Topeka (State fair), Wakefield, and Winfield.

The judges are sent only upon the request of the fair managers. Three years ago there was no demand. Last year one student and the department head attended seven fairs. This year Prof. R. J. Kinzer, Asst. G. C. Wheeler and three senior students have had their hands full. The work of the student judges seems to be giving general satisfaction, as no complaints have been registered.

In addition to this work, the agricultural students make frequent trips to big stock farms in Riley county and vicinity, where they have opportunity to see and to judge large herds of blooded animals. Some of the ranches visited this fall are: T. K. Tomson & Sons (Shorthorns), at Dover; Fred M. Gifford (Shorthorns), at Wakefield; T. G. Avery (Angus), at Wakefield; Chas. W. Merriam (Shorthorns), at Topeka; Henry McAfee (Shorthorns), at Topeka; R. I. Lee (standard-bred horses), at Topeka; John Warner (Shorthorns), at Manhattan. They also visit such stock shows as the American Royal, Kansas City, and the International, Chicago.

At the recent Kansas City show the College blooded stock took two first premiums and one sweepstakes in two-year-old grade Hereford steer and yearling Shorthorn classes; two third premiums in yearling grade Angus and Shorthorn calf classes; sixth on a Shorthorn heifer calf; seventh in Shorthorn bull class.

Cash amounting to \$165 accompanied these premiums.

In 1903 the team of students sent by the Kansas State Agricultural College to the Chicago International won the Spoor trophy for stock-judging, but upon the protest of Eastern institutions and by manipulation on the part of the management it was awarded to Iowa because, according to the Dairy Drovers Telegram, "It would never do to allow the Spoor trophy to go to the wild and woolly West, clear outside the territory of the International. It would be establishing a bad precedent, and would be ungrateful to the other colleges which have been whooping it up for the International."

Teams of students left the College last Wednesday for the International Stock Show, at Chicago, where the stock-judging and corn-judging contests occurred on Saturday. The teams were: F. L. Williams, J. S. Montgomery, R. R. Birch, G. E. Yerkes, C. S. Jones, corn judges; F. L. Williams, J. S. Montgomery, C. S.

Jones, W. J. Brown, H. J. Bottomly, stock judges.

The former team began work at 8:00 A. M. Saturday. The men were required to judge ten classes of corn, ten ears in each sample. They were given fifteen minutes to place the five best ears in each sample, and three minutes each to give their reasons, orally, for so placing them. Reid's Yellow Dent, Leaming, Boone County White, Silver Mine and Golden Eagle were the varieties judged. The stock judges scored three classes each of horses, cattle, sheep, and swine. The rules governing their work were about the same.

The Animal Husbandry Department sent seven head of purebred stock to be entered in competition at the show, including one Shorthorn bull, one Shorthorn heifer, one Angus steer, one Hereford steer, and three Shorthorn steers. Prof. R. J. Kinzer, of that department, accompanied the stock judges, and Prof. A. M. Ten Eyck, of the Agriculture Department, went with the corn judges.

The corn-judging team from the College was victorious at Chicago in 1904, and the trophy they won now adorns the College library. Both teams are expected to give a good account of them-

selves this year.

#### Alumni and Former Students.

Miss Mary Hall, '04, is now in Los Angeles, Cal., where she has a position in the Good Samaritan Hospital.—Students' Herald.

A. I. Bain, '00, lately of Marysville, Kan., has sold out his interests there and will go to the western part of the State to assist in developing that country. He visited the College this week on his way out.

Olive Dunlap, '05, has accepted a position as teacher in the third grade in the Glenwood Manual Training School of Chicago, and left Wednesday of last week to take up her work, passing through Manhattan en route.

F. N. Gillis, '03, has recently been elected cashier of the First State Bank, at Wishek, North Dakota, and treasurer of the Wishek Creamery Company, so is not in need of something to occupy his time.—Students' Herald.

T. L. Pittman, '04, made a brief visit at the College this week. The opportunity was saddened by the fact that Mr. Pittman stopped on his way back to Montana after being called to his old home by the death of his father.

Mrs. Geo. McClure (Ida Norton, junior in 1900), of St. Louis, with her little daughter, has been visiting her sister, Mrs. Mary (Norton) Polson, near Randolph, and friends in Manhattan, and was present at the Parsons-Norton wedding.

George V. McKeever, sophomore 1890, and his wife and baby visited the College last Friday. Mr. McKeever, who is a brother of Professor McKeever, is in charge of the old home farm of 1000 acres in Jefferson county. He expressed great surprise at the growth the College has made in the past fifteen years.

W. A. Hamilton, sophomore in 1904, is located at Birmingham, Ala., with the Hillside Sterilized Milk and Cream Company. He regards the opportunities for business success as far better in the South than here. His brother, C. E. Hamilton, is having good success managing a dairy farm at Chazy, N. Y., the property of H. H. Minor, of Chicago. Their products all go to the Waldorf-Astoria hotel in New York City.

Martin L. Parsons, sophomore student, and Miss Margaret Norton, sophomore in 1903, were married Wednesday evening, December 6, at the home of the bride's parents in Manhattan. The ceremony was performed by Rev. A. W. Atkinson, of the Baptist church, in the presence of a small company of friends and relatives. Mr. and Mrs. Parsons will remain in Manhattan, where Mr. Parsons will continue his College work.

Geo. L. Clothier, '92, is the author of Farmers' Bulletin No. 228, on "Forest Planting and Farm Management." This was written while Mr. Clothier was assistant forest inspector in the forest service of the Department of Agriculture, and originally appeared in the Year-book of the department of 1904. It gives somewhat detailed directions for embodying forest planting in the general plan for management of prairie farms.

# INDUSTRIALIST

Vol. 32

No. 14

ISSUED WEEKLY BY

Kansas State Agricultural College Manhattan



PUBLISHED BY
PRINTING -DEPARTMENT
J. D. RICKMAN, Supt.

Entered at post-office, Manhattan, Kan., as second-class matter. Act of July 16, 1894.

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### THE INDUSTRIALIST.

Vol. 32.

MANHATTAN, KAN., JAN. 1, 1906.

No. 14

#### The Modern Military Band.

THE origin of the military band takes us back into remote antiquity. In early times, it consisted of a few trained musicians to march in front of the soldiers and play instruments, so as to enable them to keep step as they moved forward; but at the present time any organized company of musicians that are well trained to play on the brass and reed instruments, even if in no way connected with the army, is called a military band.

The principal difference between a strictly military band and the concert band is, that the military band, in addition to playing a high class of music, should be able to go through the evolutions required in military cermonies, such as dress parades, inspections, reviews, etc., while the concert band, not having any drill in marching and other military duties, is expected to, and generally does,

play a higher and more difficult class of music.

The early history of music is vague and indefinite, but has existed from time immemorial. Every nation in olden times had its peculiar instruments and national songs. The Romans took cities to the sound of the trumpet and drum; the Chinese war music employs bells and triangles. Instruments of percussion, such as drums, cymbals, etc., which were doubtless taken from the clapping of the hands, are the oldest. Wind instruments, said to have been suggested by the wind blowing through the reeds and bushes, came next in order, and lastly came the string instruments, which are comparatively modern inventions.

The Hebrews employed military music from an early date, and the Bible refers to the cornet, flute, sackbut, and dulcimer. The instruments of Bible times were nothing like the modern instruments. For instance, the cornet was simply a curved tube about

three feet long and increasing in diameter.

After the fall of the Roman empire, military music seemed to lapse, and it was not until the middle of the fourteenth century that it was recovered among the Italians, and soon expanded among the other nations of Europe. At the end of the fifteenth century they began to use regular bands of music in the army. The Swiss in-

troduced the fife to accompany the drums, and the Germans evolved the hautboy, the modern oboe. From Hungary came the kettle-drums and bassoon, the modern horn from Hanover, and the cymbals and big drum from Turkey. The combination of these instruments with the trumpet constituted, at the beginning of the eighteenth century, practically the entire scheme of military music. The clarinet was not used in bands until 1775, being followed by the tuba, cymbal, and later the trombone. During the reign of Louis XIV, of France, military bands were regularly organized and appointed to each regiment in the French army; Frederick the Great also took a lively interest in military music.

It is only since the beginning of the last century that military music has been truly developed. The introduction of many improvements in the manufacture and the invention of various new instruments made a revolution in the harmony, by augmenting the resources and adding power of effect to the bands. Adolph Sax, a Frenchman, did more than any other man to develop the military band. Sax and his father were largely responsible for the introduction of valves in wind instruments and also invented several improved methods of making clarinets. He also invented several entire families of brass instruments, such as saxhorns and saxo-The saxhorns were originally the altos, baritones, euphonium, and basses; which added greatly to the compass, richness and flexibility of brass bands. The saxophones are of great value as they reproduce on a magnified scale the 'cello quality of tone and give great sustaining power to the full chorus of brass instruments.

Military music having attained a high state of excellence, it began to develop along the lines of concert music, which made it necessary to readjust the instrumentation of the military band for concert purposes. The arrangment of the modern concert band is modeled upon the orchestral formation, a great body of clarinets taking the place of the violins and violas of the string orchestra.

Many of the instruments are of strange shapes and their use is unfamiliar to most lovers of music. The clarinets are played with a single reed, while the oboe, bassoon, etc., are played with double reed. No other instrument possesses in the same degree as the clarinet the power of graduating its tone. Any tone from double f to double f is possible upon it, and for this reason it is regarded as the most valuable member of the band. The Bb clarinet is the principal member of the reed section, the others used are the Eb clarinet, alto clarinet, which is one octave lower than the Eb, and the bass clarinet, which is one octave lower than the Bb.

Of all existing wind instruments, the flute is probably the oldest. It is one of the most important of the wood-wind and, being the most acute of all, takes the upper part. As a solo instrument, it is heard to the best advantage, the tone being particularly soft, sweet, and agreeable. On account of its facility of fingering, almost any passage is possible on the flute. The piccolo is a small flute, and on account of its piercing quality of tone is very valuable in military bands. The saxophone, although made of brass, is always classed with the reed section.

Of the instruments played with the double reed, the oboe is the treble. Its tone is somewhat harsh, but in the middle register the tone is extremely penetrating and of a reedy quality. The bassoon is the bass of the oboe and has a very extensive compass. The bassoon is sometimes called the comedian of the orchestra, because of the peculiar effects that may be produced on it. The sarrusophone is a French invention and is practically a contra-

bassoon. It is one octave lower than the bassoon.

In the brass instruments, the cornet is the most important. Owing to the ease of tone production, the cornet is capable of greater execution than the other brass instruments, and is usually given the melody and brilliant solo passages. The trumpet has a powerful and brilliant tone and adds beauty to the cornet section.

The French horn is a valuable and important instrument, as it carries the harmony. The tone of the French horn is one of the most expressive and perhaps most romantic of all the military band. It is an extremely difficult instrument to play and is generally replaced in smaller bands by the alto or mellophone.

The trombone is a particularly important instrument. slide trombone is probably the most difficult of all the brass instruments to play, as the intonation of the trombone depends entirely upon the performer. His hands, lips, and brain must work perfectly together, for if the slide be but a quarter of an inch out of the proper position the tone will be false. The tone of the trombone is broad, dignified, and of a sustaining quality. The euphonium or baritone is one octave below the cornet, and is sometimes used as a solo instrument with good effect. The tuba is the Its tone is rich and full and blends well with bass of the band. the other brass instruments. Of the percussion instruments there are several kinds used; bass drum, snare drum, tamborine, triangle, bells and cymbals, also kettle-drums or tympani. latter have a distinct advantage over the others of their class in that they are capable of producing a distinct musical note while the other drums only produce noise.

The instrumentation of modern bands differs widely with the various bandmasters. For instance, Mr. Innes is famous for the revolutionary changes he has made in the instrumentation of the band which bears his name. A tone is produced which is delightful in its way and by methods which seem to have occurred to no one else. It is quality of tone and not quantity at which he aims, and this is one of the secrets of his success. Delicacy of shading is another of his strong points. Music deemed hitherto beyond the scope of reeds and brass are preformed so admirably as to suggest an orchestra. These effects are largely brought about by a preponderance of wood-wind instruments with string basses and harp and a large group of saxophones.

I will give the instrumentation of two typical American bands, the United States Marine Band, and the Sousa Band. The U. S. Marine Band is made up of the following instruments: Four basses, two baritones, one euphonium, four slide trombones, six French horns, three saxophones, two bassoons, two oboes, twelve cornets, one alto clarinet, one Eb clarinet, twenty Bb clarinets, two piccolos and flutes, three drums and cymbals. The instrumentation of the Sousa Band includes twelve Bb clarinets, one Eb clarinet, one alto and one bass clarinet, two bassoons, two oboes, one sorrusophone, four flutes and piccolos, one English horn, four saxophones, four cornets, two trumpets, one flugle horn, two euphoniums, four trombones, four French horns, four tubas, and three drums—tympani, snare and bass drum. R. H. Brown.

#### K. S. A. C. Poultry Show.

The annual poultry show of the Kansas State Agricultural College Poultry Show Association, formerly the Western Poultry Association, ended December 16. The finest weather prevailed and the exhibition was a decided success. The show was held under the auspices of the Dairy and Animal Industry Department of the College. Prof. O. Erf, head of the department, is chairman of the association; C. C. Smith, of Manhattan, is manager, and W. A. Lamb, of Manhattan, is secretary. Mr. Thos. W. Southard, of Kansas City, was judge. Both Messrs. Smith and Lamb are breeders of fancy poultry, and both took several ribbons and other prizes on their entries. Judge Southard is a poultry man in Kansas City, and he breeds and exhibits fancy poultry also. He is one of the best-known judges in the central west.

The show was held in the judging room of the College barn. Some forty-seven exhibitors showed over four hundred fifty chickens of various breeds. Besides these, the College exhibited seventy-two chickens which were not in competition. worth \$600 were donated by merchants, citizens and College professors.

The meeting of the State White Wyandotte Club was held at the same time, and their birds constituted a considerable part of the The attendance was very large, but no accurate account Probably four thousand persons were in attendance, was kept.

many from distant parts of the State.

The fine fall weather kept the birds in good condition. It was the general verdict of the visitors that it would be impossible to gather a better display of high-grade poultry in any part of the country. Judge Southard expressed the opinion that it was the best display as a whole that he had ever seen. He was especially pleased with the Barred Plymouth Rocks and the Silver Laced Wyandottes, which latter he thought the equals of those at the St. Louis World's Fair.

In a judging lecture and demonstration which Judge Southard gave on Friday, he talked for over an hour on the various breeds, using live specimens for illustrations. Chairman Erf, in his speech introducing him, gave some astonishing statistics of the poultry industry in the United States. "Secretary of Agriculture Wilson's last annual report," he said, "showed the year's poultry product to be worth \$500,000,000. The money value of the products of the hen are only exceeded by the dairy cow and corn and The Missouri surplus from poultry last year was \$49,000, cotton. 000."

Judge Southard gave some information with reference to the beginnings of poultry breeding, which he said began in 1873 at the American Poultry Association at Buffalo. A standard was fixed, which is revised every five years. He told how breeds originated, gave some points on breeding, then showed what constituted a perfect bird by pointing out the defects in the live specimens.

An interesting feature of the show was the test of incubators, several of which were in operation in the north end of the show The silver cup for the best per cent hatch went to the Pinkerton Company, of Lincoln, Neb. Other winners and the to-

tal values of their prizes were:

Sweepstakes silver cup for the highest scoring chicken in the show, value \$5, a tie between C. C. Smith, of Manhattan, and F. L. Marsh, of Great Bend. Mr. Smith won \$30 and Mr. Marsh took \$14 in prizes besides. The silver cup for the largest number of White Wyandottes scoring over 90 points each was taken by Mrs.

Ginnette, of Florence, Kan. She won \$5 additional on the same breed. Geo. W. Shelly, of Manhattan, took \$32 for best pen in American class and a clean sweep in Golden Wyandottes; Harvey W. Brown, of Washington, Kan., clean sweep on Dark Brahmas, \$27; Mrs. Geo. King, Solomon, Kan., best pen, best male, best female, Asiatic class, \$24; Alice J. Lamb, Manhattan, \$19.25; J. R. Young, Manhattan, clean sweep in Barred Rocks, \$18; McBride Bros., Manhattan, best display on incubators, best display of brooders, second best per cent hatch, \$17.50; I. Merrifield, Kensington, Kan., \$16; W. A. Lamb, Manhattan, \$12; M. Hastings, Manhattan, \$11.40; Theo. Walker, Gypsum, \$10; Dr. F. S. Schoenleber, Manhattan, \$10; T. F. Weaver, Blue Mound, Kan., clean sweep on Light Brahmas, \$9. A number of others won sums less than \$10.

Thos. Owens, secretary of the State Poultry Association, who exhibited White Rocks, and Gen. J. W. F. Hughes, who exhibited Buff Wyandottes, both gentlemen of Topeka, were much interested in inspecting the College poultry houses. Mr. Owens thought them the most practical he had ever seen.

Another feature of the show was the "Utility Exhibit," which included a slaughter test of various fowls, which was won by I. Merrifield, of Kensington, Kan. Also, the egg test, in which white and brown eggs were judged as to quality and appearance, per cent white and yolk, viscosity of white, cleanliness, uniformity of color and size, and evenness of shape. G. W. Shelley, of Manhattan, won first for white eggs, and Mrs. Ginnette, of Florence, Kan., won first for brown eggs.

The College has now a complete poultry division of the Dairy and Animal Industry Department. Much has been done during the last two years in experimenting with poultry. A poultry house 100x12 feet, with a main two-story addition 24x38 feet, was built a year ago. The house was built in the most practical manner, and many poultry breeders are patterning after it.

The egg-laying contest conducted here last year aroused much enthusiasm among the breeders. Experiments are now in progress to determine the value of various feeds for poultry. The question where the mineral matter for the egg shells comes from is another one which is now under experimentation. Further experiments in breeding and selecting are now well under way and definite results will soon be obtained. It would be well for the breeders to coöperate with the College in this particular, for much benefit can be derived from this practical work.

#### Roster of New Students.

At the Kansas State Agricultural College, 524 students enrolled this fall for the first time. These came from 85 Kansas counties, as follows: Riley, 83; Shawnee, 16; Clay, 15; Pottawatomie, 13; Jewell, Ottawa, 12 each; Coffey, Cloud, Dickinson, Jefferson, Mc-Pherson, Osage, 11 each; Marshall, 10; Mitchell, Wyandotte, 9 each; Harvey, Lyon, Reno, Russell, 8 each; Lincoln, Montgomery, Ness, Sedgwick, Washington, 7 each; Pratt, Rice, Republic, 6 each; Anderson, Atchison, Brown, Cowley, Geary, Kingman, Miami, Pawnee, Saline, Stafford, Wabaunsee, 5 each; Barton, Douglas, Edwards, Elk, Greenwood, Johnson, Linn, Norton, Phillips, Rooks, Sumner, 4 each; Butler, Crawford, Doniphan, Ellis, Ellsworth, Marion, Meade, Morris, Osborne, Smith, Wilson, Woodson, 3 each; Allen, Bourbon, Comanche, Chase, Ford, Gray, Jackson, Leavenworth, Logan, Nemaha, Thomas, 2 each; Barber, Cherokee, Decatur, Finney, Franklin, Greeley, Grant, Harper, Hodgeman, Lane, Rush, Seward, Wallace, 1 each.

Seven other states have the following representatives: Missouri, 6; Oklahoma, 3; Illinois, 2; Indian Territory, Mississippi, Texas, Wisconsin, 1 each. One student comes from Porto Rico; six are from the Philippine Islands. A Japanese, who was a Col-

lege employee last fall, is a student this term.

The native Kansans number 415, while 18 were born in Missouri. Iowa claims 14; Illinois, Nebraska, 11 each; Indiana, 6; Michigan, Ohio, 4 each; Indian Territory, New York, Texas, Wisconsin, 3 each; Arkansas, Mississippi, Wyoming, 2 each; California, Colorado, Maine, Massachusetts, Minnesota, Montana, North Dakota, Oregon, South Dakota, Virginia, 1 each. One girl gave her birthplace as "America." Natives of other countries: Philippine Islands, 6; Wales, 2; England, Finland, Germany, Porto Rico, 1 each.

The parents are the support of 318 of the newcomers; 138 are entirely self-supporting; 58 are partially self-supporting; 6 are maintained by the Philippine Provisional Government; by uncle,

2; by brothers, 1; husband, 1.

Occupations of parents: Farmers, 315; merchants, 25; ranchmen, 18; real estate agents, 9; carpenters, 7; ministers, 6; traveling salesmen, 5; blacksmiths, engineers, housekeepers, lawyers, liverymen, lumbermen, physicians, railroad men, teachers, 4 each; grain men, government employees, stone-masons, 3 each; artists, capitalists, clerks, editors, farmers and merchants, insurance agents, postal clerks, contractors, postmasters, teamsters, undertakers, 2 each; army officer, auctioneer, baker, bookkeeper, brick-

mason, brick worker, butcher, city marshal, coal dealer, creameryman, dairyman, dressmaker, farmer and real estate agent, fireman, florist, horse breeder, horse trader, hotel man, ice and cold storage proprietor, implement dealer, janitor, machinist, mail carrier, manager ice company, mechanic, miller, millwright, nurse, nurseryman, paper-hanger, poultryman, printer, probate judge, tailor, telephone manager, tinsmith, veterinarian, 1 each; not stated, 35.

Church preferences expressed as follows: Methodists, 143; Presbyterians, 62; Christians, 43; Baptists, 32; Congregationalists, 25; Catholics, 16; Lutherans, 15; Episcopalians, United Brethren, United Presbyterians, 9 each; Evangelical Lutherans, 3; Swedish Lutherans, 2; Adventist, English Methodist, Friends, Reformed, Unitarian, Universalist, 1 each.

Entrance by diplomas: County, 141; high-school, 71; grammar-school, 61; teacher's, 12; other colleges, 3. Twenty-three had had high-school or college training in addition to that shown by their diplomas; 68 had had grammar, county, high-school or college training, but no diploma; 168 had no credits and took examinations for entrance.

The total enrolment for the fall term was 1215.

## The Dairy and Poultry Special on the Central Branch.

Probably the most successful series of farmers' institutes ever held in the West was the one which began at Lenora December 4 and ended at Effingham December 16. The work was conducted by the Farmers' Institute Department of K. S. A. C. with the coöperation of the agricultural department of the Missouri Pacific railroad. The program was the same at the twelve different points, the subjects being "Alfalfa," "Corn Breeding," "The Dairy Cow," "Commercial Dairying," and "Poultry for Profit on the Farm." The State institute secretary arranged for some outside talent to assist the representatives from the College. Professor Erf, Asst. C. W. Melick and President Nichols were with the party a part or all of the time. The other speakers were Major Theodore Sternberg, of Ellsworth, who very graciously gave two weeks' time in delivering his very able and enthusiastic address at the twelve meetings. Hon. W. W. Marple, St. Joseph, Mo., and Mr. L. G. Humbargar, of Abilene, assisted with the dairy subjects, while Mr. S. R. Young, agricultural agent of the Missouri Pacific railroad, spoke on "Corn Breeding," and the institute secretary spoke on "Alfalfa."

The attendance at every place was surprisingly large, the

smallest attendance being 165 and the largest attendance over 800. Morning and afternoon sessions were held at every point and a permanent organization was affected at each place. At every town but one there was a very commendable local exhibit of corn, wheat, fruit, vegetables, and poultry. At all places prizes were offered, creating considerable interest in the local exhibit. total attendance at the twelve meetings aggregated something over 5200. The most remarkable thing about the whole series was the evident interest of the farmers in the matter of improving their methods of agriculture. The first meeting was at Lenora, December 4, and meetings were held in order at Kirwin, Gaylord, Beloit, Mankato, Jamestown, Clyde, Washington, Blue Rapids, Goffs, Whiting, and Effingham. At every point the statement was made that the meeting was the largest one of the kind ever held in the country. Mr. Young, representative of the Missouri Pacific, conducted the speakers from place to place in a special car, which was fitted with exhibits of grains, fruits and vegetables gathered from territory along the Missouri Pacific system. He pronounced this the most successful series of institutes that he had ever heard of. Not only was great good done in actual instruction, but a very remarkable interest was shown at every point in the work of the Kansas State Agricultural College.

## Football at K. S. A. C.

The annual election of football captain resulted in the choice of Carl Mallon, left half-back, of Ogden, Kan. Nystrom, right half, and Montgomery, left tackle, were mentioned for the place.

Mallon's selection meets with general approval. Next year will be his fourth and last year of football. He weighs 175, is a "gun" on running interference, a hard line plunger, a sure tackler, and can always be counted on to make a gain.

All the team but Kirk, quarter, who graduates next spring, will be back and in the game next fall. Sol. Cunningham will play quarter. Sol., by the way, will captain the baseball team in the spring. Scholz, captain this year, will be in his old place at full next fall.

Some good material was developed this year, and several old men who were not in school this fall will return in 1906. Two of these men are Munsel and Snodgrass, heavy line men.

The season just closed was one of signal success for the agriculturists. The team scored 149 points as against 51 scored on them, wining six out of eight games. They were narrowly

beaten by Washburn, after outplaying them, while K. U. scored the only real victory and the only shut-out against them.

The record:

K. S. A. C	Ottawa 0
K. S. A. C 5	Washburn12
K. S. A. C24	Salina 0
K. S. A. C 10	St. Mary's 5
K. S. A. C11	Fairmount 6
K. S. A. C60	Haskell (2d team) 0
K. S. A. C 0	K. U28
K. S. A. C10	K. S. N 0
Total	Total51

Financially, the Athletic Association is about \$50 ahead on the season. Including \$101.58 left from baseball last spring, \$1396.13 was taken in. Expenses were \$1246.11, leaving \$150.02 in the treasury, a net gain of \$48.44. A winning team can be maintained on considerably less than the \$4000 to \$5000 expended by other Kansas colleges.

Coach Anearn made a splendid record. He developed the best team the Agriculturists have ever had on the gridiron. He will be retained as coach of baseball in the spring and for football next fall. Athletic spirit runs high at the College, and good teams with good support will be in shape the coming spring and fall.

The big "K" was awarded all first-team men who played at least six games. Asst. Geo. A. Dean will be general manager of athletics next year, succeeding Asst. Prof. J. O. Hamilton.

## Likes Agricultural Colleges.

Dear Editor: I thought I would write to your paper and tell you what I think of boys going to the agricultural colleges. I used to think that no one could tell me anything about farming, and when my oldest boy wanted to go to one of the schools I wouldn't let him go and he told me that our farm was wearing out and that he did not like the city, but if I didn't let him go to the college he would leave home. I let him go, and I wouldn't take \$1000 for what he learned, and especially about the dairy. We have eighty cows and they have nearly doubled their milk since my boy learned how to take care of them. Good for the schools, I say.—Joseph Strauss, Hope, Kan., in Farm Folks.

The new Horticultural Hall continues to grow. A good part of the foundation walls were laid last week and practically all the concrete work has been completed. If weather continues favorable the masons will begin with the heavy ashlar work next week.

## THE INDUSTRIALIST

Published weekly during the College year by the Printing Department of the

## Kansas State Agricultural College Manhattan, Kansas.

PRES. E. R. NICHOLS. Editor-in-Chief PROF. J. D. WALTERS Local Editor PROF. J. T. WILLARD Alumni Editor

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#### Local Notes.

Ex-Regent Ed. Secrest, of Randolph, was in town several days last week.

President Nichols attended the dairy and poultry institute at Clyde and then back and joined the train at Blue Rapids and spoke at Goffs and Whiting.

"Glimpses of German Agriculture as seen by a Native Kansan," will be the subject of Prof. J. T. Willard's address on the program for the annual meeting of the State Board of Agriculture January 10 to 12, at Topeka.

Regent Berry had charge of the local arrangements for the big institute at Mankato and our institute secretary says that everything moved like clockwork. It was a big institute and Mr. Berry had worked up premiums aggregating about \$100 for local exhibits.

A great many inquiries were made of the College speakers who were on the dairy and poultry special relative to the short courses in the Agricultural College next term, and it is expected that a good many students will come as a result of the series of meetings held on the Central Branch railroad.

R. H. Shaw, assistant chemist of the Experiment Station, has just been elected to the position of assistant professor of chemistry in the University of Nebraska and associate chemist of the Experiment Station. This position involves greater responsibilities and largely increased remuneration over his present one, and Mr. Shaw feels a natural gratification in accepting it. The pleasure is increased by the fact that the offer was wholly unsolicited, and came as a result of knowledge of the good work done by him here. Mr. Shaw leaves with regret, and the feeling is fully reciprocated by his associates. He will undoubtedly succeed in his new field.

Several of the professors and their families spent Christmas vacation with relatives and friends in other cities. Professor McFarland went back to his Olathe home and Professor Eyer went to Hiawatha to visit his father-in-law. The assistants went to their parental homes, generally. Many attended the annual State Teachers' Association meeting at Topeka. Among these were President Nichols and Professors Kammeyer, McKeever, and Cortelyou. Others attended the annual sessions of the State Horticultural Society at Topeka, and took an active part in the program. Among these were Professors Dickens and Popenoe. Professor Walters remained at his post looking after the contractors of the new addition to the boiler-house, the new Granary, and the new Horticultural Hall.

The city fire department was called to Prof. W. A. McKeever's residence on Wednesday, December 20. Fire had started in the basement, where a pile of shavings and the stairs leading to the basement were burning when the department arrived. Mrs. McKeever and some neighbor boys attempted to extinguish the flames, but were not successful. The fire probably caught from the furnace. Fortunately the damage was only slight.

The Manhattan Evening Republic announces in its Tuesday number that, on account of mal-nourishment, it will cease to exist after December 31. The editors, Kimball Brothers, are energetic and live young men, but they could not make the paper a financial success and got tired of publishing at a constant loss. The Weekly Republic, published by the same firm, has greatly improved since they took hold of it and is constantly gaining in patronage. It will be issued regularly at the old stand, as heretofore. The last three or four issues of the weekly are of metropolitan size and models of the typographic art.

The local I. O. O. F. lodge has received notice that the Manhattan proposition for the location of the I. O. O. F. home had been accepted. The offer includes the Eureka Lake hotel and the one hundred thirty-four-acre tract upon which it is located. This hotel was built by the late Manhattan millionaire, C. P. Dewey, at a cost of about \$55,000. The furniture now in the hotel cost \$14,000. Other furnishings, outbuildings and general improvements cost at least \$6000, making the total cost about \$75,000. At the last meeting of the Kansas I. O. O. F. grand lodge the home board committee was empowered to select an I. O. O. F. home. Propositions offering money and land as inducements for the location of the home were received from Topeka, Manhattan, Salina, Norton, Wichita, and Independence.

The following extract from a review of Goss's Journal of the Voyages and Travels of Lewis and Clarke, (Medical Repository, Series II, Vol. 5, p. 185, 1808) was received from Prof. A. S. Hitchcock, so long at the head of our Botanical Department, and will be read with interest by the "miserable remnant of the human race" now tussling with the bison and deer of occidental Scythia: "On the whole we gather from the perusal of this small volume that from the sterility of the greater portion of the country extending from the head of the Osage river and from the mouths of the Kanza and the Platte, it is not likely to be useful in agriculture, nor to become the residence of civilized man. It will probably remain in the possession of scanty tribes of the aborigines whom their mutual and unabating thirst for each other's blood may leave And as joint-tenants with these miserable remnants of the human race, the beaver, the wolf, the lion, the deer, and other wild animals of the desert, will continue to propagate and to afford furs and peltry to the hunter and the trader for an incalculable succession of years. In the meanwhile our fellow citizens of the Atlantic states, and of the republics beyond the Alleghanies, becoming convinced by these discoveries what few temptations the

country ceded to us by France affords to agricultural enterprise, will be content to remain in the more fertile and happy regions that have been alloted to them, and neither agitate their minds nor ruin their fortunes in projects and speculations about lands which may be compared to Scythian deserts, and which neither the French nor the Spaniards, with all their exertion, have ever been able to improve to any considerable extent during the long series of years that have elapsed since the original discovery and settlement."

## Alumni and Former Students.

Born, December 4, a daughter, to C. F. Smith, '02, and Charlotte (Berkey) Smith, '00, at ElDorado, Kan. Mr. Smith is teaching mathematics and physics in the high school there.

Roland McKee, '00, resigned his position in the Maryland Agricultural College before taking up its duties, in order to accept one as scientific aid in the Department of Agriculture.

Geo. H. Deibler, third-year student in 1887, visited the College last Tuesday. Mr. Deibler is now a successful contractor and builder in South McAlester, I. T. Time has dealt lightly with Mr. Deibler and he looks almost as he did twenty years ago.

The following wireless communication has been received from T. E. Lyon, '93, of Springfield, Ill.: "Robert Melton Lyon arrived at our home October 25. He is a fine fellow and expresses his feelings in a plain, frank way—just like any good Jayhawker would do."

Among the more recent graduates in attendance at the State Teachers' Association were: Margaret Minis, '01; Etta Barnard, '03; Elizabeth Finlayson, T. E. Dial, and J. J. Biddison, '04; Margaret Haggart, F. E. Balmer, Helen Bottomly, Jessie M. Hoover, and Harvey Adams, '05.

Among the graduates and former students who spent winter holidays here were J. C. Cunningham, '05; L. W. Fielding, '05; A. B. Gahan, '03; Clara Spilman, '00; Ruth Mudge, '01; Frank W. Boyd, Mamie (Alexander) Boyd, '02, Miss Ethel Alexander, and Dovie (Ulrich) Boys, '03.

J. B. Thoburn, '93, visited the College last week. He is now editing and publishing a paper in Oklahoma, O. T., and meeting with gratifying success, due in part to the attitude of the public growing out of his long and successful service as secretary of the Territorial Board of Agriculture.

Lulu G. O'Daniel, student in 1902, was married to Mr. A. R. Springer, Monday afternoon, December 18. Miss O'Daniel since leaving the College has devoted her time to music, in which she has become highly proficient. Mr. Springer is a rising young lawyer of Manhattan, a graduate of the law school of the University of Kansas.

R. H. Pond, '98, visited the College last Friday for the first time since his graduation and was much pleased with the evident progress. Mr. Pond is professor of botany and pharmacognosy, Northwestern University. His department is located at 87 Lake street, Chicago, where he will be glad to see old friends who may happen to be in the city.

Belle (Haines) Pond, '67, died at her residence, Topeka, Kan., Tuesday December 26, after a number of years of ill health. The funeral services were conducted by Rev. Chas. M. Sheldon, at the Central Congregational church. Relatives from out of town were present, including her son, R. H. Pond, '98, and her brother and sister, Watson Haines, former student, and Phœbe (Haines) Mc-Keen, '83:

The Jersey Bulletin for December 20 contains the announcement of a test of one of the Jersey cows belonging to Fred Zimmerman, '98. She is registered as Lorne's Oonan 135969. The test extended from November 24 to 30, 1904. She produced in the seven days: fat, 15 pounds 6 ounces; milk, 210 pounds 8 ounces; average per cent of fat, 7.3. The test is authenticated by the College Experiment Station.

Dr. A. T. Kinsley, '99, and Anna (Smith) Kinsley, '01, made the hearts of many friends glad by an all-too-short visit here this week. They were entertained by Miss Melton and Miss Deming, at the home of the former, and a few friends were invited in to renew old friendships with them on Wednesday evening. As both had been student assistants in the Chemical Department, they were especially interested in its progress during the last three years, but found much else also to engage their attention. Dr. Kinsley is one of the most indispensable members of the faculty of the Kansas City Veterinary College.

E. Jeanetta Zimmerman, '91, smiles from the front page of a folio announcement from which we learn with pleasure that she is filling engagements as instructor and lecturer, especially in such work as that of the Chautauqua Literary and Scientific Circle and in Nature Study and Domestic Economy. The October Chautauquan refers to her as "An energetic and enthusiastic Chautauquan. The daily round tables under her charge resulted in renewed interest in the Chautauqua movement." We wish Miss Zimmerman most abundant success in this field of work, for which she is eminently qualified.

## The Sante Fe Will Run Agricultural Trains.

Our institute secretary is now negotiating with the Sante Fe for two institute trains to be run over that great railroad. One will cover the southwestern lines, dealing largely with wheat culture, while the other will cover the lines in the southeastern part of the State and will probably have a more varied program.

# INDUSTRIALIST

Vol. 32

No. 15

ISSUED WEEKLY BY

Kansas State Agricultural College Manhattan



PUBLISHED BY
PRINTING DEPARTMENT
J. D. RICKMAN, Supt.

Entered at post-office, Manhattan, Kan., as second-class matter. Act of July 16, 1894.

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# THE INDUSTRIALIST.

Vol. 32.

MANHATTAN, KAN., JAN. 8, 1906.

No. 15

## Good and Bad Seed.

HAT is good seed, commercially speaking? It is seed true to name, free from weeds and debris, and of high germinating quality. In the case of the main crop cereals, no especial difficulty need be experienced nowadays in getting and in recognizing good seed. It is in connection with subsidiary crops like the grasses, and those plants that have small seeds, such as alfalfa, the clovers, etc., that farmers experience their greatest difficulty. How can good seed certainly be secured? The very best way is to obtain it from a neighbor's field, where one can see the plants growing, and can be certain that it has been harvested and cleaned in a proper manner. In the first place, however, one must be certain that he knows the plants of the variety or species in question, and that he can distinguish their seeds from those of other plants that may be intermingled. If one buys seed of a neighbor, he is doing exactly what the seedsman does. The latter buys, of some farmer or special grower, a large lot of seed from a field of plants and retails it at a high price to local storekeepers and individual farmers. If one has no neighbors who have good seed of their own raising, he should buy of the nearest wholesale dealer with a good reputation. In general, it is better to buy of a wholesaler than from a local storekeeper. Retailers are more apt to have old or poor seed left over, which they have not gotten rid of, and if the seed turns out badly they can shift the blame to the wholesaler from whom they may claim to have bought it. ally, everything depends upon the character of the dealer. local dealer has a known reputation for integrity and straight dealings, buy of him. Otherwise, take no chances, but buy of the whole-The latter has a larger general reputation to protect, and is more tender on the subject of exposure. It is very much more to his business interest to sell good, pure, fresh seed than it is in the case of a local storekeeper. The former sells seeds alone, and his fortunes rise or fall with their reputation. The latter rarely does an exclusive business in seeds, and he can recoup in dry goods or hardware any loss of prestige involved through putting a few bushels of poor seed on the local market. Sometimes local dealers become wholesalers in a small way, and do mainly a seed business. In such cases it all goes back to the character of man in the business.

But suppose one buys of a wholesale seed dealer of general reputation. The price is the next point at issue. Generally speak-

	RECORD SHEET	NO. 1.
Seed Analysis No.	, Herbarium No.	, Sender's Mark
Received	, 19	
Sent by		
Address		
Sender's Letter, Date	19	
Letter File No.		
Our Reply, Date	19	
Letter Book No.	, P.	
Seed Purchased	19	
Ву	, 43	
From	, of	
Wholesale and Retail S Local Retail Dealer Private Party	eed House	
Who Purchased Same,	, 19 , of	
of		
Wholesale and Retail H Local Retail Deafer Private Party	louse	
Price Paid by Grower		
Amount of Land Planted		
General Results		
Remarks		

ing, it does not pay to buy cheap seed. One can usually buy several grades of a standard seed variety. Take alfalfa, for instance. One can buy "Fancy," "Choice," or "Prime" alfalfa, as many dealers designate the grades. The difference in quality of the different grades will depend on the amount of foreign matter mixed with the seed, including debris, seeds of weeds, etc., and also upon the germinating quality of the seed. A low grade of alfalfa will contain many brown, shrivelled seeds, in which the embryos or germs are dead. One cannot expect "cheap" seed of that sort to yield as many plants to the acre as bright yellow seed

which is evidently alive; and when disappointment comes, it is the buyer and not the seller who is to blame. Weed seeds are present in greater quantities in low grades of commercial seeds. Such lots of seeds have not been thoroughly or sufficiently cleaned. For that reason they are cheap. Seeds of Buck-horn or Ribbed Plantain will fill up as much space in a bushel measure as

RECORD SHE	ET NO 2	YSI	S
analysis by			19
Wt. of Sample Analyzed			
	Wt. Grams	%	;
. Sound Seed True to Name		_	_
2. Dead or Defective Seed			-
3. Poreign Seed		_	-
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Total t Pereign Seed, Cid NAME	assified	%	≸ of Total
Total t Pareign Seed, Cid NAME	assified	%	≸ of Total
Total t Pareign Seed, Cid NAME	assified	96	≸ of Total

seeds of alfalfa, and are worth less than nothing at all. To remove with a fanning-mill costs money. It is cheaper to leave them in. The plants of Ribbed Plantain can be removed from the fields where the alfalfa is being grown for seed; then the alfalfa seed will be free from the seeds of the weed. To remove them, however, costs money. It is cheaper to let them alone. The alfalfa seed harvested from such a field will be worth less than if it were pure. It will sell for less on the market if the foreign seed is present in any serious quantity. Sometimes, however, the alfalfa seed is adulterated, or contains weed seeds, and still is sold

for pure seed and at the price of the latter. Then there is just cause for complaint and investigation. Some adulterants, to refer to alfalfa again, are extremely difficult of recognition by any but an expert. Seeds of Yellow Trefoil and Sweet Clover are of this class. The only safe procedure is to send samples for analysis in to the Experiment Station. Farmers are, perhaps, more subject to disappointment with the seeds of grasses than with those of any other plants. In the case of most cereal grasses, such as corn, wheat, and rye, one buys the seeds themselves, threshed out of

Seed Analysis N	lo.						Germ	inatio	n Test	t No.				`	-{	Original Sample Separated Pure Seed Separated Defective Seed					
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Day of Test.					1		TT		T			1	T T	TT	T					+	
No. Seeds Germ.							171						1	++	-	-		-		+	

their seed envelopes or "glumes." Others, such as oats, spelt, and emmer, come upon the market within the "glumes," or chaff, as it is commonly called. The commercial "seed" of practically all the grazing and hay grasses of our fields is of this character. The commercial "seed" is seed plus the enclosing chaff. The real seeds are invisible within, and in buying them one has to take it on faith that there are actually seeds within the glumes. How can the farmer know that this is not the case? There are two practical ways of determination—by weight and by making a germination test. The latter is the easier method for the farmer, because he may not happen to know what a bushel, say of English Blue-grass, should properly weigh.

Anybody, however, can make a germination test. Take some good, moist garden soil and bake it in an oven in a covered dish to retain the moisture. This will kill the seeds of weeds and fungi,

and is more effective than dry baking. Count out one hundred seeds of the variety to be tested, plant them in this sterilized soil, in shallow boxes (cigar boxes will do), with a cover of glass or wood to retain the moisture. Most of the commercial grasses will ger-



PLATE I.—Bromus inermis (Hungarian Brome Grass). Seeds magnified four diameters.

minate all their seeds in ten days to two weeks. Kentucky Bluegrass requires twenty-eight days. Alfalfa and the clovers require six days. A somewhat easier way is to put the counted seeds between sheets of blotting-paper (preferably such as have been sterilized by boiling), keeping the latter, during the experiment, in a moist chamber such as can be made by inverting one

plate over another. If blotting-paper is used, a count of the germinated seeds should be made every day until the end of the test, beginning in the case of alfalfa and the clovers, on the third day after the experiment was commenced. With the common grasses,



PLATE II.—Festuca elatior (English Blue Grass or Meadow Fescue). Seeds magnified four diameters.

the count should begin on the fifth day. Kentucky Blue-grass is an exception, since its germination does not commence until the four-teenth day of the test, as a general thing. Differences exist between results obtained by the two methods of germination. It is well, if practicable, to try both. The temperature should not fall

below fifty nor exceed seventy-five degrees Fahr. during the experiment.

The best commercial seed will rarely show a germination percentage above 95, and 80 per cent is a more common figure.



PLATE III. - Bromus secalinus (Cheat) Seeds magnified four diameters.

Moreover, in the present crude condition of affairs, the buyer will pay as much for the one as for the other.

In buying grass seed, farmers are quite generally unfamiliar with the form and specific character of the individual seeds of different grasses. This accounts for the great number of cases that have come to the attention of this Experiment Station, in

which the seed of Cheat has been sold for Brome grass or English Blue-grass. A glance at the plates accompanying this article will suffice to show the distinctions. If the buyer is in doubt, he should take no chances, but should send in samples for analysis.

Within the past year the Botanical Department of the Experiment Station has inaugurated, on an extensive scale, the analysis of seed for farmers. The presence on the market of adulterated

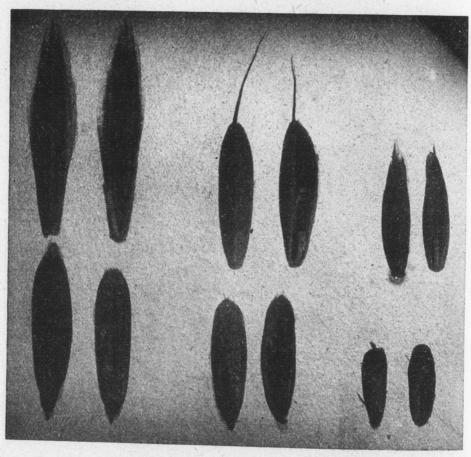


PLATE IV.—Upper row. beginning at the left, commercial seeds of Bromus inermis (left); Bromus secalinus (center); Festuca elatior (right). Magnified four diameters. Lower row, seeds of the same species removed from their glames. Magnified four diameters.

and bad seed of many important crops renders it the duty of the Experiment Station to take a hand in protecting the farmers against deception, and what is perhaps equally important, in urging them to buy better grades of seed, since the difference in cost between the cheapest and best grade will be more than made up for by the quality and purity of the stand. In making these tests it has been found advisable to adopt a system of records, founded upon those in use in the United States Department of Agriculture, but with some important modifications of form and arrangement that seem to the writer advantageous. These records consist of two sheets for tabulating the results of the mechanical analysis for pu-

rity of seed. Sheet No. 1 is intended exclusively for the office file, and gives a complete history of the sample sent in. Sheet No. 2 gives the results of the analysis itself, and of this, two copies are made—one for sending to the farmer and the other for office pur-

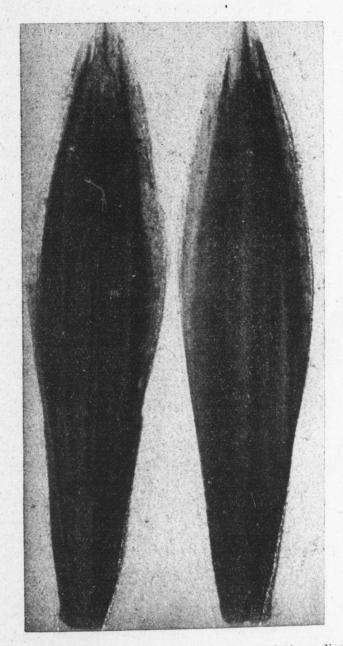


PLATE V.-Bromus inermis, seeds in glumes. Magnified fifteen diameters.

poses. The germination test is shown upon a third sheet, upon which it is possible to show the results of four different methods of testing the same sample. It should be stated that farmers of the State have responded in large numbers to the offer made by the Experiment Station, and that many seed firms in the West, doing business from Missouri river points, are making it a practise

to send here for analysis, samples of seeds of which they contemplate buying bulk lots.

If the farmers of Kansas will constantly avail themselves of the services of the Station, there need be no occasion for deception in any case, in the buying of commercial seeds; but the Experiment Station cannot be expected to join in the indignation of the farmer who has bought the cheapest grade of alfalfa or English Bluegrass that he can find anywhere on the market and then feels abused because he does not have a clean lot of bright, pure, fresh seed, free from weed seed, sticks, stones, and other debris, and germinating ninety-five seeds out of every one hundred.

It should be stated that the services of the Experiment Station, in the matter of seed testing, are rendered without charge to any citizen in the State.

(To be continued.) H. F. ROBERTS.

Contract has been let by the government for exhuming the bodies of 175 soldiers interred at old Fort Hays many years ago, and remove them to the National cemetery at Fort Leavenworth for permanent burial, in the shade of the historic maples which surround the picturesque burial ground at the post. The work of disinterring the long-buried bodies of regular army soldiers, the most of whom died in the service of cholera, has already commenced and will be carried through as rapidly as possible. Some of the bodies have been buried at Fort Hays for well nigh forty years but the department has decided that its dead shall be placed at Fort Leavenworth in honorable burial and in a place which is not liable to be abandoned by the government for many years. Old Fort Hays vanished with the frontier days and the reservation has passed into the possession of the Agricultural College and the State Normal School.

Manhattan will soon have a "Faculty Lane." Seven members of the Faculty have lately bought a tract of land directly west of the City Park with the intention of dividing it into building lots and erecting residences. The divisions will measure 70 by 270 feet each. It is expected that a year or two will see all the residences completed. The lots face the park and the new quarter will undoubtedly soon become one of the finest in the city. The members of the "Lane Club" are Professors McKeever, Brink, Eyer, Cortelyou, and Hamilton, and Assistants Wheeler and Melick.

One of the rooms in the basement of the Agricultural building is being fitted up for an exhibition room for agricultural machinery.

## THE INDUSTRIALIST

Published weekly during the College year by the Printing Department of the

## Kansas State Agricultural College Manhattan, Kansas.

PRES. E. R. NICHOLS. Editor-in-Chief PROF. J. D. WALTERS. Local Editor PROF. J. T. WILLARD. Alumni Editor

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#### Local Notes.

State Architect Stanton was here last Thursday to make estimates for the contractors of the new buildings.

The attendance of the present winter term will be by far the largest in the history of the College. During the first three days of the term over 1400 students were enrolled and a large number were ready to take the examination.

The next number of the College Lecture Course will be a lecture by Dr. Herbert L. Willett, of the University of Chicago, January 9, in the Auditorium. Lecture tickets for the remaining six numbers of the course may be obtained of the committee for \$1.50.

The Farm Department has commenced the shipment of seed grain for spring planting to farmers in different parts of the State. From 500 to 800 bushels of grain will be sold for seed to Kansas parties. The Department has been fortunate in obtaining half freight rates on all seed shipments from Manhattan, McPherson, and Hays.

The Printing Department has just received a new quartomedium Gordon job press for the rapidly accumulating light work. This will give the print-shop two first-class jobbers and an A-No.1. double revolution cylinder press which would give a fine press equipment to the average printing establishment, but it is hardly adequate to meet the constantly increasing demands of the department. There is also great need of more type and more

Prof. Oscar Erf has just published a neat fifty-page pamphlet on dairying, which he calls a "Dairy Arithmetic," and which he intends to use as a text-book in some of his classes. The book is divided into fifteen chapters, which treat the subjects of Milk, Butter Fat, Cream, Milk Products, Specific Gravity, Testing Milk, The Babcock Test, Butter Milk and Whey, Cream Standards, Detection of Adulterations, The Acid Test, Dairy Bookkeeping and Management, etc. The printing and binding was done by the College Printing Department.

Miss Antoinetta' Becker, the new Superintendent of the Domestic Art Department, has arrived and taken charge of her work. Miss Becker's home is in Woodstown, N. J. She is a graduate of Drexel Institute, where she took a two-years' normal course and a two-years' postgraduate course. While taking her postgraduate work she was an assistant teacher and had full charge of the evening classes. She also taught classes in guild work in Philadelphia, Pa. Miss Becker comes to us well recommended and takes hold of her work with diligence and energy.

## Kansas at the Chicago International Stock Show.

Six head of pure-bred cattle, sent by the Animal Husbandry Department of the Kansas State Agricultural College to the Chicago show, captured twelve ribbons and \$410 in cash prizes. These were the same animals which took seven premiums and won \$165 in cash at the Kansas City Royal Stock Show last fall. The

winnings at Chicago were as follows.

"Sunflower Lad" two-year-old grade Hereford steer, bred by T. J. Crippen, of Council Grove, Kan., took first in Hereford special, third in grades and crosses, and third in Clay, Robinson & Co. Kansas Laddie," yearling grade Angus steer, bred by C. S. Sutton, of Russell, Kan., took second in grades and crosses, and third in Clay, Robinson & Co. special. "Lord Hanna," Shorthorn steer calf, bred by S. C. Hanna, of Howard, Kan., took third in Shorthorn calf class, and third in Shorthorn Association spe-"Wiley Dun," two-year-old Shorthorn steer, bred by H. C. Duncan, of Osborn, Mo., took fourth in two-year-old Shorthorn class, and fourth in two-year-old Shorthorn Association special. "Tim," white yearling Shorthorn steer, bred by S. C. Hanna, took fifth in yearling Shorthorn class, fourth in Shorthorn Association special, and second in Clay, Robinson & Co. special. "College Mary," Shorthorn heifer, bred by the College, took fifth senior calf in Shorthorn breeding class. There was strong competition in the last-mentioned class, there being 37 entries. The College also secured first on Shorthorn steer herd, composed of "Wiley Dun," "Tim," and "Lord Hanna," which victory alone brought \$135 of the total cash won.

The student stock judges sent from the College took fourth place, there being six other Colleges represented by teams. Guelph, Ont., was first, Ohio, second, and Iowa third. The corn-judging

team was third.

## December Weather Report.

The monthly report of the Kansas State Agricultural College weather station is as follows:

The unusual amount of sunshine, the absence of high winds and the uniform daily temperature range made December, 1905,

an ideal winter month.

The mean maximum temperature for the month was 46.6°, the mean minimum temperature 19.7°, with a mean temperature for the month of 33.1°, as compared with 30.4°, the mean for December for the past forty-seven years. The highest temperature for the month was  $56^{\circ}$  on the 11th, the lowest  $6^{\circ}$  on the 4th. highest December temperature ever recorded here was 75° on December 12, 1889; the lowest, minus 16° on December 11, 1868.

During the month there were 24 clear days, 5 partly cloudy, and 2 cloudy. December 2 and December 27 there were traces of rain, with traces of snow on December 1 and December 21, but in amounts too small to be measured, making this the first December on record at this station in which no precipitation is recorded, although only .02 inches fell in December, 1889. The corresponding month for 1892 shows 13.75 inches of snow, the greatest December fall.

The month was marked also by high barometer, with a mean of 29.03, the maximum being 29.53 on the 9th, the minimum 28.52 on

the 27th.

The prevailing winds were from the northwest, the total wind velocity being only 5482 miles, as compared with 7161 miles, the previous mean velocity for the month of December. The average daily run was 176.86 miles, with an hourly mean of 7.36 miles.

The constant freezing and thawing of the ground has not been as hard on the wheat as usual under such conditions, on account of the lack of moisture at the surface. Wheat, however, was not up to its usual December condition at the close of the month, and needed rain or snow. The latter came January 2.

#### SUMMARY FOR 1905.

The mean temperature for the year was 54.13°, with a range in temperature of 133°. The highest was 107° on August 23, the coldest minus 26° on February 13.

There were 217 clear days, 80 partly clear, and 68 cloudy.

The rainfall for the year was 35.51 inches, and 5.14 inches above normal. The total snowfall was 14.33 inches.

The highest barometer was 29.90 on January 25, the lowest 28.15 on May 3. The mean barometer for the year was 28.91.

## Alumni and Former Students.

W. W. Buckley, '05, has been appointed a first lieutenant in the marine corps.

C. S. Cole, '04, after spending the vacation at home, has returned to his school near Keats.

Blanche Stevens, '05, has returned to take special work in drawing for the remainder of the year.

H. M. Thomas and Jeannette (Perry) Thomas, of Harrisburg, Pa., both of the class of '98, are the proud parents of a son born December 28.

G. W. Gasser, '05, who has been clerking in a hotel at St. John, has been elected secretary of the Young Men's Christian Association at Fort Riley.

W. A. Boys, '04, has sold out at Lee's Summit, Mo., and bought land near Goodland, Sherman county, Kansas. There, on cheaper and broader acres, he and Mrs. Boys (Dovie Ulrich, '03) will grapple with the problems of short-grass farming.

Jessie Sweet, '05, who has been teaching in Cloud county, spent her vacation at home in Manhattan. On Thursday evening, December 28, she entertained about a dozen of her classmates at the new Sweet home on Pierre street, music and conversation being much enjoyed by all, as well as the delicious refreshments served. Miss Sweet visited College on the morning of the 4th and left that afternoon to resume her duties as school-mistress.

L. A. Doane, '04, is now in the employ of the Topeka Pure Milk Company, but spent a few days visiting his parents and friends in Manhattan during the holidays.

E. H. Hodgson, '03, and Miss Flora Perry, special student last term, were married Wednesday, December 27, at the home of the bride's mother, in Little River, Kan. They will be at home on the Hodgson home farm, near Little River, where the good wishes of many friends follow them.

W. N. Birch, '04, Topeka, Kan., has sold his dairy interests to the Topeka Pure Milk Company, of which he is a part. He is in charge of a portion of the city business. In connection with attending the Buell-Allen wedding, he took the opportunity to visit the College and such friends as he could find.

The January number of the Jayhawker is one of the best yet. It contains interesting letters from Harriet (Nichols) Donohoo, '98; W. B. B., '04; Emma (Haines) Bowen, '67; Ione (Dewey) Sutherland, '93; Stella Stewart, '00; F. J. Smith, '95; C. L. Thompson, '05, and one too modest to sign even his initials, who writes from the Law Department of the University of Michigan. The magazine also contains an article on "Art," taken from a paper by Mayme (Houghton) Brock, '91. The alumni notes are numerous and include extracts from many other letters. On the whole, this number comes nearer being an alumni journal than anything yet issued. This is in accordance with the plans of the present very efficient editors, Sarah Hougham, '03, and Alice Loomis,'04. The Jayhawker is in every way worthy of the hearty support of the alumni body.

T. W. Buell, '04, and Marian Allen, '04, were married the evening of January 1, at the residence of the bride's mother, by Rev. A. W. Atkinson. The young couple was attended by Miss Amy Allen, '04, as bridesmaid and Mr. A. N. H. Beeman, '05, as best The decorations were presented by Mr. Baxter and were very beautiful, consisting in part of a bank of palms, mistletoe, evergreen festoons, and wedding bells. The bride carried white roses and the bridesmaid pink roses. An elegant three-course luncheon was served by Misses Jessie Allen, Vesta Williston, Odessa Dow, and Adah Lewis. The guests were numerous, sixtytwo being present altogether, and among them were the following classmates of the bride and groom: Vera McDonald, Mary Davis, Mamie Helder, Wallace Birch, May Doane, Marjorie Smith, Grace Allingham, Jennie Ridenour, Carl Thompson, and Viola Norton. Mr. and Mrs. Buell will remain here for about ten days and then go to their home near Roanoke, Texas, where Mr. Buell is observing the coincidence, or lack of it, between the theory and the practice of agriculture.

One dozen each of two styles of gopher traps of the celebrated Newhouse pattern, made by the Oneida Community, have been received from the makers gratis, with express charges prepaid, for trial in the Department of Zoölogy.

Historical Society

## THE X

# INDUSTRIALIST

Vol. 32

No. 16

ISSUED WEEKLY BY

Kansas State Agricultural College Manhattan



PUBLISHED BY
PRINTING DEPARTMENT

j. D. RICKMAN, Supt.

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# THE INDUSTRIALIST.

Vol. 32. Manhattan, Kan., Jan. 15, 1906.

No. 16

#### Good and Bad Seed.

(Concluded.)

Perhaps it will be interesting to consider a few examples of the results of some of the analyses. In general it may be said that the most common fault to be found with the alfalfa seed on the market lies in the large amount of immature, dead and decayed seed so frequently present. In one case, the dead and defective seed of alfalfa reached 60 per cent of the total, from 5 to 10 per cent being very common in the samples analyzed. sample of alfalfa seed received, analyzed 95.6 per cent pure, and apparently sound seed of the species, with but 4.4 per cent of all impurities, which latter consisted entirely of dead alfalfa seed, there being but a trace of foreign seed and inert matter in the The germination test of the sample showed 93 per cent of the seed capable of germination. One of the very worst samples received showed but 63.9 per cent pure, good alfalfa seed, while the impurities amounted to 36.1 per cent, and consisted of dead and decayed alfalfa seed 28.1 per cent, foreign seed 7.1 per cent and inert matter .9 per cent. Such a collection of weed seeds as was compressed into this sample one would go far to seek.

								Seeds
Yellow Trefoil			 					126
Rugell's Plantain			 					21
Ribbed Plantain			 					10
Crab Grass			 					16 8
Red Clover			 ٠.		•		•	_
Yellow Foxtail	٠.		 					5
Sweet Clover			 			٠.		~
Witch Grass		٠.	 		•			-
Timothy	٠.		 ٠.	•	•			
Lambsquarter			 	٠.				4
Pigweed			 					9
False Mallow			 ٠.					9
Hoarhound			 ٠.	٠	• •		٠	1
Peppergrass			 ٠.	•				1
Wild Carrot			 ٠.	•				1
English Blue-grass	٠.		 ٠.		٠.		•	1
Wild Verbena			 					1
Spurge			 				•	1

All of the above came from a sample weighing five grams, or .18 oz. avoirdupois, the standard amount used for making purity tests.

Let us examine the results in this case. There are 211,350 alfalfa seeds in a pound. In a pound of seed of the character analyzed there would be as follows:

Good alfalfa seed, capable of germinating	35 053
Dead and defective alfalfa seed, incapable of germinating	59 389
Foreign seeds of all kinds	20 503
Of these, the Trefoil seeds would amount to	11 396
Plantain and Crab Grass seed	4942

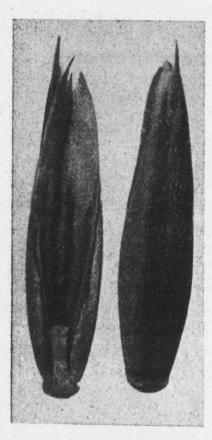


PLATE VI.—Festuca elatior (English Blue Grass. Magnified fifteen diameters.

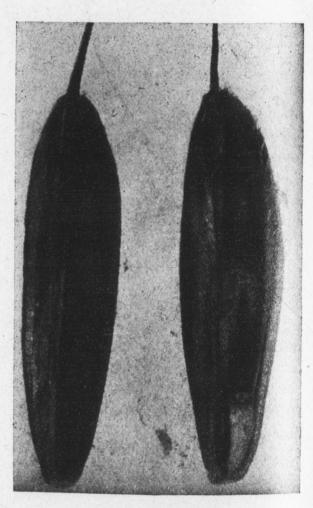


PLATE VII.—Bromus secalinus (Cheat). Magnifled fifteen diameters.

Sowing at the rate of fifteen pounds to the acre, with an absolutely pure sample of alfalfa seed, there would be, if equally distributed, seventy-three alfalfa seeds sown on every square foot of ground. The amount of impurities in this sample would reduce the number of the alfalfa seeds to the square foot to forty-six, and would substitute for good alfalfa seven foreign seeds for every square foot. The positive damage possible is evident here when we consider that these weed seeds were paid for and are added to the weed seeds already existing in the soil, and very frequently,

they are perennial weeds of a nature very difficult to eradicate. If alfalfa seed costs seventeen cents a pound, there would have been, in a case like this, as much as six cents absolutely thrown away for every pound of the seed bought.

If a farmer bought seed like this at eleven cents and then went out into his newly sown alfalfa field and threw six copper pennies out upon the ground for every pound of the seed that he had drilled



PLATE VIII.—Flower clusters from heads of Bromus secalinus (left), Bromus ciliatus (center), Bromus inermis (right). Magnified three diameters. In this illustration it will be noted that the Cheat spikelets are comparatively beardless. This frequently occurs, although Cheat is typically bearded. The central figure of fringed Chess or Cheat, illustrates an occasional Cheat species, sometimes found as a weed among the seeds of other grasses, although less commonly than seeds of Bromus secalinus.

in, he would easily be credited by his neighbors with lack of ordinary sense, if not with lunacy; and yet, when bad seed is sown, the result is exactly the equivalent of this process, and to the amount thus lost must be added the rental value of the land occupied by the weeds, the seeds of which he has bought and sowed. Of course, in the instance under consideration the plants of the Yellow Trefoil are not to be charged as being weeds, although they are greatly inferior to alfalfa in value, but in many other instances which have come to our attention, the total of the foreign seed

consisted of entirely useless or noxious plants. For instance, in another sample of alfalfa seed, in which the foreign seed ran as high as 5 per cent of the total, there were 294 foreign seeds in the five-gram sample analyzed, of which only five could, by any possibility, be considered of value.

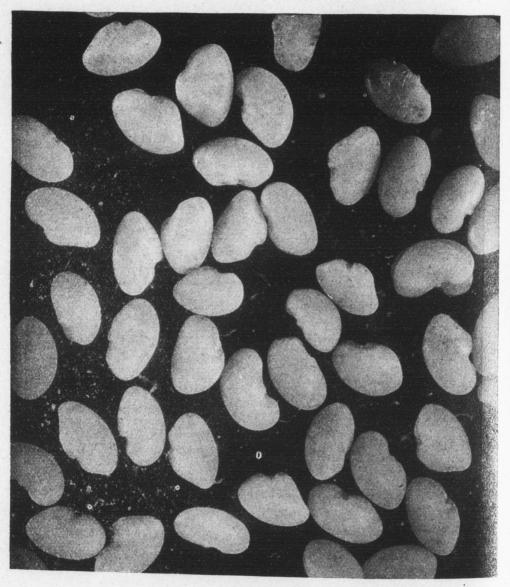


PLATE IX.—Pure alfalfa seed. Magnified eight diameters.

So far as the grass seeds are concerned, samples of which have come here for analysis, the principal grasses analyzed have been Hungarian Brome grass and English Blue-grass, or Meadow Fescue. While weed seeds of various sorts are found occurring in these samples, the proportion of inert matter—sticks, stones, dirt, etc.,—is greater, as a rule, than in the alfalfa samples. The principal criticism of the lower grades of these grasses is that they are apt to contain large quantities of Cheat. In one sample, for instance,

the pure English Blue-grass amounted to but 22.8 per cent, the inert matter to 2 per cent, and the foreign seed to 75.2 per cent, of which the Cheat amounted to 72.6 per cent. In another sample received from the same party, the Cheat seed amounted to 90 per

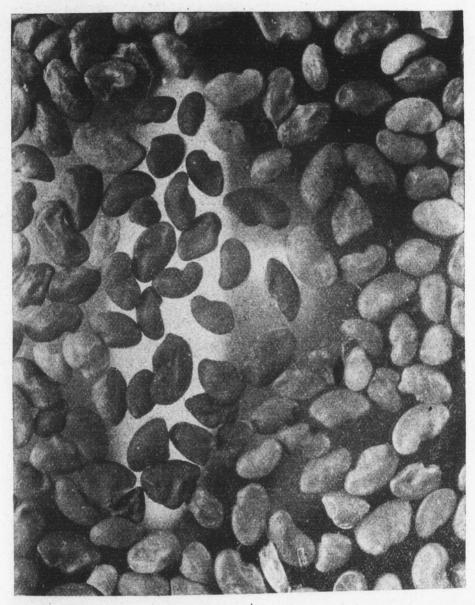


PLATE X.—Bad alfalfa seed. Magnified five diameters. Sample analyzed as follows: Good alfalfa seed, 79 per cent; dead or defective alfalfa seed, 15 per cent; foreign seed, 4 per cent; inert matter, 2 per cent.

cent. Another sample, purchased for Bromus inermis, contained absolutely none, and consisted of English Blue-grass 75.9 per cent, and other foreign seeds 15.2 per cent. Another sample, bought for English Blue-grass, was found to consist of 99 per cent Cheat. Another sample, bought for the same, contained 61.5 per cent of English Blue-grass and, besides the other impurities, 33.2 per

cent of Cheat. The instances might be multiplied indefinitely. Of course, this is not to imply that every sample of bad seed came from a seedsman or even from a retail dealer. Some of the cases were of seed bought by one farmer from another, both apparently

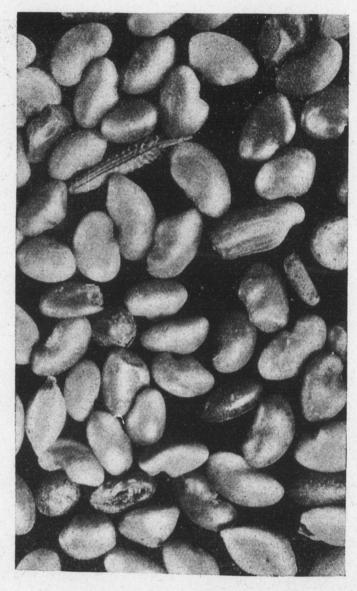


PLATE XI.—A fair sample of good, average commercial alfalfa seed running 93 per cent pure. Magnified eight diameters.

being ignorant of its character. It is time that this waste should stop. Cheat (*Bromus secalinus*) is an annual species of Brome grass of small value, and farmers should learn to know the difference between its seed and the seed of Bromus inermis and Meadow Fescue, with which it is most commonly found mixed. Perhaps it is not necessary to state that nothing ever "turns" to Cheat. Cheat grows from Cheat seeds produced on Cheat plants.

In conclusion it may be said that seedsmen will improve the

quality of their output of seed just as fast as the public exacts higher standards, and no faster. In this respect, they are just exactly like anybody else who has anything to sell. They sell what they have as long as people will buy it. If the people want

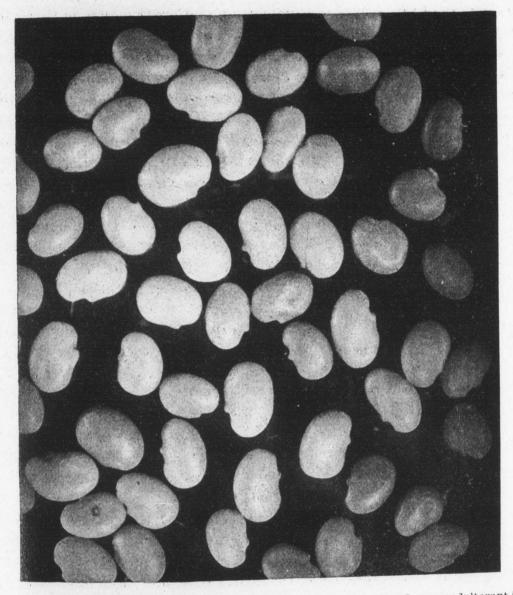


PLATE XII.—Seed of Hop Clover or Ye'low Trefoil, frequently found as an adulterant in alfalfa seed. Magnified eight diameters.

something better and demand it, are willing to pay the price for it, and refuse to pay a low price for cheap seed, the seedsmen will furnish what is demanded. In the mean time the Experiment Station will do all in its power to protect farmers against blunders and deceptions in the matter of commercial seeds, by analyzing, free of charge, all samples that may be sent in, addressed to the Botanical Department.

H. F. ROBERTS.

### George Fayette Thompson.

Geo. F. Thompson died of pneumonia, in Washington, D. C., January 6, 1906, after a very brief illness. He was buried there on the 9th. Such is the short, sad message that shocked many relatives and friends scattered from the Atlantic to the Pacific. In the prime of life, full of enthusiastic plans for the bureau that had received his unstinted services for many years, it is hard to realize that he is gone, that his bubbling good humor and shrewd common-sense will delight us no more. His presence was wholesome as sunshine. As a friend he was unostentatious in profession and indefatigable in performance. There will be sadness in more than an ordinary degree in many hearts outside the family circle. These will join in sincerest sympathy with the much more deeply bereaved—his wife, two daughters, two sons, and many relatives.

George Fayette Thompson was born November 8, 1860, in San Joaquin county, California. His father was Rev. R. S. Thompson, who traced his ancestors back to pre-revolutionary times. Some served in the war for independence, later settling on the New York and Pennsylvania frontiers. Succeeding generations had gone ever westward. Reverend Thompson with his family removed from California to Belmond, Iowa, where as a small boy George learned to set type. In 1874 they located in Cowley county, Kansas, and the boy had the advantages afforded by a few months country schooling each year. A taste for reading, however, led to his acquiring more of his early education outside the schoolhouse than in it. He was noted in those days as a winner in spelling contests. His first newspaper work was done about that time as a country correspondent of the Winfield Courier over the pseudonym "Caesar." He taught school and worked in the harvest-fields to earn money to go to the Agricultural College, which he entered in 1878. The Printing Department was then under the superintendency of A. A. Stewart, and Mr. Thompson gave all his spare time to learning the printing business. middle of his senior year, on the resignation of Superintendent Stewart, October 1, 1881, he was asked to take charge, and at the end of the College year was elected superintendent. he failed of graduation. Under his guidance the Printing Department made substantial progress. That was a day of smaller things than the present, but the department, in addition to issuing the Industrialist, printed the College catalogues for a number of years, and several small books, among them "Gleaner Gleaned," "Webster Reporter," and "Qualitative Analysis." Mr. Thompson was very popular and efficient as an instructor, his unfailing

good temper and his knowledge of English composition contributing as much to this as his technical skill. He resigned in 1886 to engage in newspaper work. With Rev. R. D. Parker he purchased the Manhattan Nationalist, and they edited and published it for a number of years. Later, Mr. Thompson sold out and received an appointment in the Government service at Washington. For some eight or ten years he has been editor of the publications of the Bureau of Animal Industry, United States Department of Agriculture, where his taste and ability have revolutionized the character of its publications. He prepared voluminous indexes of the reports of the Department of Agriculture from 1837 to 1893 and of the literature of animal industry that are of the greatest In addition to doing much to shape the value to students. writings of others he has written two bulletins on the Angora goat and one on milch goats. Last summer he made a trip to Europe to study the milch goat problem and purchased a flock for use in this country. He expected to buy many more in the near future to supply the large demand that has developed.

In consideration of his service to agriculture and his nearness to graduation, the Board of Regents in 1902 conferred upon him the degree of Master of Science.

Upon the death of Mr. Brigham, assistant secretary of agriculture, Mr. Thompson became a candidate for the position, and while he failed to attain his ambition he received most remarkable endorsement for it from all parts of the country. He had a wide acquaintance on account of his writings and his many addresses at live stock meetings.

J. T. W.

Manhattan will soon add a genuine Spanish villa to its many beautiful suburban homes. Mr. Casement, of Mentor, Ohio, who owns a large bottom farm three miles north of the city, is making preparations to build a residence there that will be one of the finest and most unique in the State. It will be one story high and enclose a large open square into which carriages may drive through an open arch. On one of the outsides there will be a The villa will contain eight bed-rooms, a large large porch. parlor, a large dining-room, a billiard room, a kitchen, several pantries, half a dozen bathrooms, and a number of dens and The ceilings closets. Nearly every room will have a fire-place. will rest on heavy beams of hardwood and the exterior will imitate the Spanish Mission style which has been so successful in southern California. The drawings for the villa were made by Architect Garfield, of Mentor, a son of the late president.

## THE INDUSTRIALIST

#### Published weekly during the College year by the Printing Department of the

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#### Local Notes.

On January 3 the sales of the cooperative book-store amounted to \$911.01.

The Board of Regents will begin their regular winter session on January 24.

Professor Roberts is following out some interesting experiments with graft hybrids in the greenhouse.

The drill room of the Armory was enlarged during the holidays by tearing out several of the partitions.

Professor Willard has an article in *Drovers Telegram*, of Chicago, on the "Kansas State Experiment Station in 1905."

Miss Gertrude Hole has had charge of the Experiment Station laboratory since the departure of Assistant Shaw.

Assistant Theo. H. Scheffer went to Delphos, Kan., Thursday, to attend the burial of his mother, who died at the old family home on January 9. Mrs. Scheffer was over seventy-six years old at the time of her death.

The Animal Husbandry Department sent a number of crates of fancy fowls to the State Poultry Show at Topeka last week under the care of W. A. Lamb. Dr. Schoenleber also had a string of fine fowls there from his private yard.

Henry Avery & Son, of Wakefield, Kan., advertise a sale of fine Percheron horses at the College, on February 24. The horses will be shipped here a week before the sale to give the students a chance to judge them in the judging classes.

Prof. J. D. Walters, who has been a member of the Faculty of this College for over twenty-nine years, calculated the other day that he has climbed College Hill over 30,000 times. He says that it will take another 20,000 climbs to tire him out.

A. Miyawaki, of Sapporo, Japan, is taking special dairy work in the creamery this term. He comes here from a high school in California, where he has been for the past three years. He expects to become a teacher in his native land.—Students' Herald.

The most successful farmers' institute ever held in Douglas county was held at Vinland, Friday. Over one hundred farmers, with their families, came out for an all-day meeting and a big dinner. Mr. J. W. Robison, of El Dorado, and Mr. C. E. Hildreth, of Altamont, spoke on corn breeding, and Mr. Miller, the institute director of the Kansas State Agricultural College, spoke on alfalfa. Pure-bred seed-corn was distributed for seed plots.

The contestants in the inter-society oratorical contest, which is to be held this term, are: R. R. Birch, Alpha Beta; M. R. Shuler, Webster; E. W. Wilson, Franklin; C. E. Davis, Hamilton; Marcia Turner, Ionian. They will speak in the order named.

The Botanical Department has finished for publication a bulletin on "Alfalfa Seed; Its Adulterants and Impurities." This bulletin supplies practically the only information available on this important topic, and will be of considerable use to the farming community.

The Printing Department has mailed this week Bulletins Nos. 130 and 131 of the Experiment Station. Both are published by the Dairy and Animal Industry Department. The former is a report on the "Steer-Feeding Experiments of 1903-'04," and the latter a resumé on the "Care of Dairy Utensils."

Another private class for the study of French is being organized. The promoters have asked Mr. Jackson to instruct them. The class will meet at some residence in the city, and for this and other reasons the membership will be limited. Students wishing to become members of this class may consult Miss Sperry.

The College delegation to the annual session of the Kansas State Agricultural Association on Tuesday, Wednesday and Thursday of last week consisted of President Nichols and Professors Willard, Erf, Kinzer, Wheeler, and Schoenleber. Professor Willard read a paper on Friday evening on "Glimpses of German Agriculture as Seen by a Native Kansan." C. P. Hartley, a graduate of the College, now from the U. S. Department of Agriculture, Washington, D. C., read a paper on "Corn Improvement," and several of the professors shared in the discussions.

We are not able to give the total number of students enrolled at this writing (Friday noon) because new ones are constantly arriving and taking examinations, while others are shifting from one course to another, and still others are, for one reason or another, unable to settle down to work, but we know that there are about 1450 students actually at work in the class rooms. Nearly 1000 of these are young men. On January 17 of last year the number enrolled was 1250, which gives an increase of 200 Divided into classes of 25 students, and assuming that each student takes 6 different subjects, these 200 additional students would require the organization of 48 additional classes, and divided into classes of 50 students it means the organization of 24 The fact is that President Nichols, before he left new classes. for the Annual Agricultural Board Meetings last Monday, had organized 26 additional classes, and that a number of such classes will yet have to be organized. Though this phenomenal growth means more work, more teachers, more class rooms and more means, the Kansas State Agricultural College rejoices over the fact, and the Faculty says "the more, the merrier!" It is a good sign for a State when its educational institutions are crowded.

#### Advanced Price for Prairie-dog Poison.

Prof. E. A. Popenoe, of the Experiment Station at the Kansas State Agricultural College, announces an advance in price for prairie-dog poison. This advance was announced last September, but farmers of the State are paying no attention to it, which is causing much delay and difficulty. The State legislature formerly appropriated funds to pay in part for the material used in its composition, but the last assembly withdrew this fund. The expense is now entirely upon the College. In addition, strychnine, one of the ingredients, has risen eight per cent in price. Hence the former prices of \$1.75 per half-gallon for prairie-dog poison, and 90 cents per quart for pocket-gopher mixture, are now advanced to \$2.00 and \$1.10, respectively. This is actual cost.

The Kansas Station has done some valuable work in the eradication of the prairie-dog and other rodent pests. Over a ton of potassium cyanide and considerably over a ton of strychnine have been used by Professor Popenoe and his predecessor, Professor Lantz, during the last four years. About a million acres of infested lands have been entirely reclaimed, while a partial destruction of the pest has been accomplished over a much larger area.

#### The State Corn Show.

The annual meeting and corn show of the Kansas Corn Breeders' Association will be held at Manhattan, January 22 to 24, 1906. The meeting begins with an evening session, January 22, at 8:00 P. M. Hon. Edward Taylor, of Edwardsville, Kan., will speak on "Reciprocity and Markets." He has made a specialty of corn, alfalfa, and potatoes, and is well informed on the subject upon which he will lecture. Prof. W. J. Spillman, head of the grass and forage plants investigation interests of the United States Department of Agriculture, will talk on "Mendel's Law and Its Application to Practical Problems in Corn Breeding."

At 8:30 A. M., January 23, corn-judging classes will be held, in which the members of the association and farmers will be given practice work in judging corn.

At 10:00 A. M., Supt. O. H. Elling, of the Ft. Hays Branch Experiment Station, will lecture on "Development of Various Breeds of Corn for Western Kansas." Prof. W. J. Spillman will again talk on "The Value of Good Management on the Farm." He has made a special study of farm management since being connected with the government work, and has established several model farms in the Southern States.

At 1:30 P. M., Dr. C. G. Hopkins, professor of agronomy and chemistry at the University of Illinois, Champaign, will speak on "Practical Corn Breeding for Improvement in Yield and Value." Professor Hopkins and his twelve assistants have done a great deal to improve the protein and oil content of corn, and he is considered a leader in the ear-test work in corn breeding, and has issued many valuable bulletins upon this subject.

Following this, reports will be heard from the farmers who competed in the yield-per-acre contest, in which they will tell how

they grew their big yields of corn. At the same session, D. Ward King, of Maitland, Mo., well known as the originator of the "King Road-Drag," will speak on "Good Roads." After the lecture an

opportunity will be given to see the drag in operation.

At the evening session, 8:00 P. M., announcements of the awards of prizes in the corn exhibits will be made. Following this, Mr. C. P. Hartley, a graduate of the K. S. A. C., now assistant physiologist of the United States Department of Agriculture, and known as "Uncle Sam's Corn Breeder," will give a lecture on "Corn Breeding," with stereopticon illustrations. All subjects upon which lectures are given will be open for discussion.

The morning session of January 24 will begin at 8:30 with a corn-judging class. This will be followed by a business session, presided over by the president of the association, Hon. J. W. Robison, of Towanda, Kan. Officers will be elected for the ensuing year. Further corn-judging work will be given from 1:30 to

3:30 P. M.

Of the eighty varieties of corn tested at the Kansas Experiment Station during the past three years a large per cent of those producing the highest yields are native corns. Each member and visitor is requested to bring a ten-ear sample of corn representing his ideal type, whether it is one of the so-called pure bred varieties or a native corn, which samples may be entered without fee

in the competitive exhibits.

Prizes to the value of several hundred dollars are offered in the various classes. The prizes to be offered for the ensuing year will be announced at this meeting. There has been a great awakening on the subject of corn breeding in Kansas the past year, and a large attendance is expected at the coming show. A good program and a good time are assured. One and one-third fare rates for the round trip, on the certificate plan, have been granted on all Kansas railroads. In order for members and visitors to avail themselves of these rates, it will be necessary for them to secure of the local agent a certificate or receipt for the fare paid to Manhattan, which, when properly certified by the secretary of the association and by the joint ticket agent, will be good for the purchase of a return ticket for one-third fare.

Prof. F. S. Schoenleber, with an assistant, recently made a thorough investigation of the dairy herd of the National Military Home, at Leavenworth, Kan., and found that out of eighty milk cows tested twenty-six were affected with tuberculosis. Sixteen, being suspicious, were held for a retest next spring. There is no doubt that similar conditions exist elsewhere. Professor Ten Eyck, of this College, had his cow tested a short time ago and found that she showed a strong reaction. The report of the Kansas State Board of Health gives an alarming increase in deaths from tuberculosis in the human. Professor Schoenleber says that probably thirty-three per cent of the dairy stock of the State is affected with the disease. As a consequence, the health of man must suffer, also.

#### Alumni and Former Students.

Geo. O. Greene, '00, and Alta (Worley) Greene are the happy parents of a boy.—*Herald*.

W. O. Staver, '94, has moved from El Paso to Del Rio, Texas. Mr. Staver is Chinese inspector for the district of Texas in the Immigration Service of the Department of Commerce and Labor.

A. L. Cottrell, '03, of the Cottrell Feed Company, of Elgin, Ill., in connection with a request for change of address, states that the company is getting along very well in its business of making alfalfa meal and is running the factory night and day to keep up with orders. Business has come faster than they expected, and inside of a year they expect to make one hundred tons per day.

F. W. Christensen, '00, visited the College this week for a short time on his way back to State College, Pa. He was called home by the death of his father, Nels Christensen, who was well known in this county as one of the old settlers and best citizens. F. W. will be employed this winter in connection with the studies in nutrition with the respiration calorimeter.

The following concerning Schuyler Nichols, '98, is taken from the Herington Sun: "Dr. Nichols has returned from Chicago and taken hold of the drug and medical business purchased from Dr. Sutherland. Dr. Nichols has made many friends during his sixmonths' stay with us, and no doubt will build up a lucrative business. He has been appointed local surgeon of the Rock Island road."

The second annual meeting of the Kansas Corn Breeder's Association will be held at Manhattan, Kan., beginning with the evening session, January 22, and continuing through the after noon session, January 24. Besides the best Kansas talent on corn breeding and relative subjects, the following eminent agriculturists will appear on the program: Prof. W. J. Spilman, in charge of the grass and forage plants investigations, U. S. Department of Agriculture; Mr. C. P. Hartley, in charge of the corn breeding work of the U.S. Department of Agriculture; Dr. C.G. Hopkins, professor of agronomy and chemistry, University of Illinois, Champaign, Ill., one of the leaders in experiment work in corn breeding; Hon. D. Ward King, Maitland, Mo., the originator of the King split-log road drag, who on the afternoon of January 23 will talk on "Good Roads" and demonstrate the use of his Corn-judging classes will be held, in which the farmers will be given practice work in judging corn. Every farmer is requested to bring a ten-ear sample of corn which represents as nearly as possible his ideal type for entry in the corn show, in which prizes to the value of several hundred dollars will be offered. One and one-third fare rates have been granted on all Kansas railroads from points where fare one way is more than fifty cents. Visitors should ask their agents for a certificate of fare paid to Manhattan, which when properly certified will be good for purchase of return ticket at one-third fare.

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# THE INDUSTRIALIST.

Vol. 32. Manhattan, Kan., Jan. 22, 1906.

No. 17

#### Some Notes on the Kaw River.

It is not probable that any one ever measured the length of the Kaw River. In giving its length geographers vary from one hundred sixty to two hundred miles. From its source, the confluence of the Republican and Smoky Hill, to its discharge into the Missouri (by government survey of range lines) the distance does not differ much from one hundred twenty miles. But this by no means indicates the length of the river, for in places its

course is very sinuous.

Thus, take the point Ashland bridge, a short distance southwest of Manhattan, and a point about one mile south of the Kaw bridge at Manhattan, where the river strikes the bluff. The distance between these points in an air-line does not exceed two miles. Prior to the flood of 1903 the river between these points crossed the valley from bluff to bluff three times, a distance of about six miles. The new channel made (though not straight) by the flood uses about one-third of the former distance. The water, of course, flows in an easterly direction, yet since the flood the writer has seen the water in the old channel near Manhattan flow west as far as the mouth of the Wild Cat. This was caused by a rise in the river, most of the water going along the new channel and forcing the water from the east up the old channel.

Without doubt the entire valley is underlaid with sand, and since the flood, in many places, overlaid. This accounts for the ease with which the river can change its course. Through the whole length of the valley are abundant proofs that the present channel is a very different one from what it has been in the past. Little bodies of water, commonly called lakes, are found here and there. There is no visible connection between these and the river, though the water in them doubtless comes from the river by un-

derground filtration.

The flood of 1903 caused not only much disaster but wide comment. The Kansas City papers have discussed what corporations of various kinds at that place have done in the matter of narrowing the channel. Suits have been brought for damages, the suits

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alleging the damage arose from the narrowing of the channel by the corporation against which the suit has been brought.

The writer of this article first crossed the Kaw river near its mouth nearly forty years ago, and of his own knowledge can confirm the changes made in Kansas City.

Somewhat from curiosity and somewhat from a desire to know more about the river (we know too little of the things immediately around us), the writer during the last spring and summer made some measurements of the width of the river-bed-none of the depth of the water. By the river bed is meant the low depression of land in which the waters of the Kaw ordinarily flow. uals can scarcely differ as to what the bed is, but might differ in its The measurements were made at wagon bridges measurement. and over the water. In a few places there was a slight curve outwards, in which cases the measurement was not made to the arc, but to the chord. Others might make the measurements vary from these somewhat, but they are substantially correct. place that presented any difficulty as to the bed was at James street bridge, Kansas City. Here so much rubbish of various kinds has been thrown in that it is difficult to distinguish the bed; elsewhere the sides were clearly sand and no difficulty arose.

The Union Pacific railroad station at Fort Riley is but a short distance below the junction of the rivers that form the Kaw. The bed of the Republican where it crosses the road from the Fort to Junction City (about one mile from Fort Riley station) and just before it joins the Smoky Hill has a width of 246 feet.

The following table shows the dates of the measurements, the distances from Kansas City by the Union Pacific railway, the places, the width of the bed in feet, and the width, as nearly as can be ascertained, before the flood:

Dates, 1905.	Miles.	Places.	Width of bed.	Width before flood.
February 27 March 3 March 3 March 2 June 17 June 17 June 18 June 18 June 19 June 19 June 20 August 13 September 2 September 2 September 2	122.0   122.0   128.6   129.1   128.6   17   118.6   17   110.9   110.9   128.6   128.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   129.6   12		428 504 860 766 590 786 687 924 636 666 805 629	418 494 633 766 590 788 687 600 636 668 805 629

These figures show very great irregularities in the width of the stream since, but not so great before, the flood. Curiously at the

Ashland bridge, farthest up the stream, the bed is 39 feet broader than at James street wagon bridge, Kansas City. The former is, as the river runs, about 150 miles from the Missouri, the latter about one-half mile, and all this after the Kaw has received such considerable streams as the Blue, Vermilion, Mill, Big Soldier, Delaware, Wakarusa, besides many smaller ones.

At St. George the stream is divided into two parts at the bridge by a narrow island 40 feet wide, the channel on the south side, 220 feet wide, having been cut out by the flood, and a few feet cut from the north side of the island, so that prior to this time the width was about 630 feet.

At Wamego, Lecompton, De Soto, Bonner Springs, and Turner, the current setting against the rocky bluff, the conditions are about the same, and there was no addition made to the width. The tendency of the current at Lawrence is the same as the before-mentioned places, but here a dam is across the river. Thus a free flow of water was prevented, so it cut around the north end of the dam nearly 440 feet. This has since been filled, keeping the stream substantially at its former width.

At Eudora conditions were more like those at St. George, and the flood cut away 324 feet from the north side. Here also is an island 326 feet wide at the bridge, and south of it is a channel 227 feet wide. Through this latter water flows when the river rises a little above its ordinary height. This bridge, the longest over the river, is 99 rods in length.

At Argentine the water has piled up the sand in great quantities, thus narrowing the bed. Below this place the river very materially widens until it reaches the packing-house and railroad district, where it narrows, as shown by the following, copied from the Kansas City *Times*, and dated July 27:

"The present widths of the Kaw river between Fifth street and the mouth of the stream were taken July 12 by Tuttle and Pike, engineers. Beginning at Fifth street bridge, where the river is 807 feet wide, the stream becomes narrower until at the James street bridge, almost at the mouth of the river, there is a width of only 473 feet. . . . At the American Dressed Beef and Provision Company's sewer, 665 feet. Proceeding down stream at the Rex Mills, 660 feet. . . . Kansas City Belt Line railway bridge the stream is only 550 feet wide. The new stock yards bridge is 510 feet across and the Union Pacific and Missouri Pacific railway companies' bridges are each 540 feet."

This extract speaks of the "river," "stream," and the length "across" bridges. Evidently none of these have reference to the

width of the "bed" of the stream, but most likely from bank to bank. The banks slope away from the bed of the stream at various angles, and the width of the stream as measured from the top of the banks is much greater than the width of the bridge or bed. Thus the width of the stream at James street bridge, as given by the engineers, is 473 feet, while the width of the bed is 389 feet. ther proof of this, at the office of the Frisco engineers, some distance below the James street bridge, where the company is building a new bridge, the writer of this was shown the plan of the bridge. This plan showed that the distance between the piers is 601 feet; but the piers stand back on each side some distance from the water. leaving the width of the bed considerably less than 600 feet. A short distance below this new bridge is the last railroad bridge crossing the Kaw, but the bridge runs diagonally over the stream. A rough estimate of the bed here makes it not far from 580 feet. No measurement was made at the mouth, where it is somewhat wider.

The packing-houses situated on the Missouri just below the mouth of the Kaw have thrown much rubbish into the former river. This crowds the Missouri further north, causing the Kaw to pile up more sand than it otherwise would. The effect is that the Kaw mouth is narrowed until it is but little, if any, more than 700 feet wide.

In the History of the Expedition of Lewis and Clark, Elliott Cones, 1893, Vol. I, pp. 32 and 33, speaking of the Kansas river, is found the following extract: . . "till its junction with the Missouri . . .; here it is 340½ yards wide, though it is wider a short distance above the mouth." June 26, 1804: "We camped at the upper point of the mouth of the Kansas river." They remained there June 27 and 28. Vol. III, p. 1209. Sept. 15, 1806. "The Kansas river is very low at this time." So it is seen that when nature was left free to act the mouth of the river was 1020 feet 9 inches wide, and still wider a little distance above.

At the bridges, wagon and railroad, all along the stream, the approaches are sometimes quite lengthy and of considerable height, thus retarding the free flow of water and tending to make injuries by flood worse. In some cases the first bench from the river is entirely filled by an embankment. And man will continue to do what man has done.

Nature makes the low depressions whereby water may flow. Man fills them up with bridges, embankments, houses, etc., apparently hoping the water will run over the hills and far away, but when it does not he wonders at the inscrutable and myster-

ious ways of Divine Providence. Suits for damages against railroads for not delivering goods shipped have been thrown out of court because, said the judge, the flood was an "act of God." And still missionaries are sent to the heathen. B. S. McFarland.

#### Loss of Horses in Kansas.

CONSIDERABLE loss to the live-stock interests of the State of Kansas is occasioned at present by the fatality among horses having access to corn or corn-fodder affected with a mould. Not since the fall and winter of 1890-'91 has there been such severe While the whole of the State of Kansas is more or less troubled in this respect, the south-central part is especially afflicted. Reports are most numerous from the following counties: Kiowa, Pratt, Kingman, Sumner, Edwards, Stafford, Rice, and This mould was thoroughly investigated and experimented with upon rabbits, guinea-pigs, and horses, by the Veterinary Department, in 1891. It was then concluded that the disease responsible for this trouble, commonly called "staggers" (Cerebritis), was caused by the mould Asperigillus glaucus which follows the ravages of the green corn worm (Heliorthis armigera). The ear of corn is usually affected at the tip, but sometimes the growth of the mould extends over the greater part of the ear, always following wherever the kernels or cob are injured. It is very easy to find, as the husks always adhere to the affected parts of the corn, and at times the light color of the mould shows upon the surface of the unhusked ear.

The peculiar nature of the disease as manifested in the horse being mostly nervous, makes it difficult for the ordinary person to notice the premonitory symptoms. In a horse at work, the first noticed is the refusal of feed and a desire for water, but frequently drinking is performed with difficulty, and sometimes not at all. Following this is a period of dulness, drooping of the ears and head, partial or complete blindness, loss of consciousness, delirium, and death, or in a few cases recovery. In cases where the spinal chord is more affected than the brain the animal loses control of its hind parts. Where the brain symptoms predominate the animals will press the head against the wall or any available solid object with considerable force. Sometimes they are found to wander in a circle, going around one way continually, some to the right, others to the left. At other times we find that the least excitement will throw the animal into a frenzy, making it dangerous to go near it.

The treatment of this trouble has so far proven very unsat-

isfactory. The animals should be kept as quiet as possible, with perfect hygienic surroundings. If the animals can swallow, a purgative of about seven drachms of aloes, followed by one drachm of iodide of potash or three drachms of the bromide of potash, dissolved in water, every three hours.

In many instances nothing has been done toward preventing this trouble until after the owner or community has lost a greater portion of the horses. It has been noticed that in the vicinity where there is a good practicing veterinarian the trouble has been recognized and prevented before a great amount of loss has been sus-The advice usually followed there is to withhold all mouldy corn, or to keep the horses from the fields where the mouldy corn can be had. When feeding the fodder or ear corn from the crib, all of the affected material should be withheld from the animals. In case of corn which has been shelled, if poured into a vessel of water the mouldy kernels usually float to the top and may be skimmed off. A rather peculiar condition seems to exist in connection with this food: when the animals once get a taste for this diseased corn they seem to prefer it to the sound corn and fodder. F. S. SCHOENLEBER.

#### A Japanese Abroad.

THE successful conclusion for Japan of the "late unpleasant-ness"—at least quite unpleasant for Russia—has centered the interest of the American public in the sturdy little brown men of Nippon. Their genius and prowess, coupled with their religious ideas, their history, educational methods, their national life in all its phases, have become subjects of keen interest to all the world.

The Japanese as a race have shown some astonishing characteristics. Nationally they are a unit *par excellence*. History has, perhaps, never before paraded such a spectacle. But the individuals are the real factor.

Since the rise of the Mikado, the Flowery Kingdom has been reaching its hand with "methodical madness" to the pulse of the civilized world. "We adopt, adapt, and become adept," is a Japanese maxim. The statesman, soldier, scholar, shopkeeper, has gone abroad, with eyes and ears wide open, to get the world's best for his country.

Of the many Japanese in America, one has found his way to the Kansas State Agricultural College, at Manhattan. He comes with a purpose in his sturdy heart. He is Shige Suzuki San, of Sapporo, Japan. He confesses to the age of twenty-five years on No-

vember 26. He learned to speak English, and he speaks it fluently, from a Japanese professor in a native high-school in his home province of Shimane Ken. Later he attended the government agricultural college at Sapporo, on North Island, from which he graduated in the three-years' course in 1903.

He gives some interesting information with reference to his alma mater and other schools. The Empire University is located at Tokio, and is conducted on the English plan, like Oxford. The agricultural college began as a small government school at Tokio in 1865. Later, in 1879, after a visit by Count Kodura, governor of North Island, to America, it was organized as the government agricultural college and moved to Sapporo. William Smith Clark was the first president. He came from the Massachusetts Agricultural College, at Amherst, bringing other professors with him. Gradually the crafty Japs. have replaced the foreign instructors with their own men, and in 1894, Doctor Sato, a graduate of Sapporo, and later of Yale, became its president.

Sapporo maintains three three-years' courses, in civil engineering, forestry, and agriculture, to which the degree of bachelor of agriculture or engineering is attached. A six-years' course in agriculture, including two years of preparatory work, grants diploma and degree of master of science in agriculture. This school is conducted after American methods.

Sapporo is remarkable in one respect, particularly since the college is located upon so small a portion of the map, comparatively speaking, and one so densely populated. It owns 15,763 acres of land. This gives an idea of the liberality of governmental support for educational purposes. About 500 acres are used by the college for grain raising, pasturing, and student experimental work. The balance is rented out to secure funds, by which means Sapporo expects soon to become self-supporting.

Besides the land the college owns about 150 blooded cattle, 50 pure-bred horses, with hogs, sheep, goats and poultry in proportion. About 40 professors are employed, and 300 students are in attendance.

Suzuki San (San is Japanese for Mr., and always follows the surname) owns a 500-acre dairy farm in the land of the chrysanthemum. This he acquired on the death of his father by virtue of Japanese law which makes the eldest son the sole heir. Two brothers and two sisters are thus dependent upon his bounty. One of the brothers, 19 years of age, is a student in the six-years' course at Sapporo.

Suzuki came to America over a year ago. From Victoria, B. C.,

he went to San Francisco, to Chicago, then to New Orleans, and later to the St. Louis World's Fair, where he was an employee of "Fair Japan," on the Pike. At the conclusion of the fair he came West, and has been at Manhattan about seven months.

He spent during the fall term five hours each morning in the creamery at the College, where he dealt with all the problems of modern butter and cheese making, handling all the makes of dairy machinery. The afternoons he used in working at the dairy barn, milking, feeding, etc., showing great energy and accuracy. This winter he is taking the dairy short course.

As an attache of the College Dairy Department and as a student, he won second prize of \$5 cash and a red ribbon offered by the Kansas State Dairy Association at the Topeka State Fair last fall for the best butter-maker.

After finishing the dairy short course at Manhattan next spring, Suzuki expects to travel eastward, observing the dairy methods there, as he has already done in West, South, and Middle West. When he returns to Japan, next fall, he expects to equip his farm, which he intends to increase to several thousand acres, with the latest American machinery, and to run it according to the methods he learned here. Among other things he will buy a \$2100 steam plow. He views it from a practical standpoint and says that it will be cheaper in the long run, as a time saver, since the season is short, and as a money saver, because good horses are very high-priced in Nippon, and the keep of many head and the cost of additional labor would be a heavy expense. Moreover, the engine can be used for many other purposes.

He thinks the teaching along dairying lines and the work itself are superior in America to Japanese methods, but believes that scientific agriculture and the methods of teaching it there are ahead of any other.

In answer to the inquiries of a St. Louis girl with reference to his country, he enclosed a letter from her to Miss A. Daughaday, an American Congregational missionary at Sapporo. Part of a letter from the missionary to him, dated Sapporo, July 29, 1905, follows:

"She seems much interested in Japan, but indeed, all the world is now on account of the skill, bravery and successes of the Japanese army and navy. We feel proud of Japan because of these things, but far more on account of the honor about keeping promises that she has shown, humanity to her enemies and prisoners, and great kindness to non-combatants (Ni-sentoin). Her cause is

just, and God is fighting for her and is punishing Russia for her sins."

With reference to a question as to the feeling in Japan for America, he says: "There is a better feeling toward America than for any other nation. At Sapporo we always used a star in our decorations for student celebrations, to represent our American professors. We are grateful to them. We look upon America as a mother. Perry came to Japan from America. Before that we thought Japan was the only country for Japanese. But Perry taught us that we must look to other nations and learn things. He woke us up. We owe our progress to America."

With reference to the islands, he says that wheat and rice are raised chiefly on the main, south and west islands, and land on these is worth from \$500 to \$600 per acre. On the north island the soil is not so good, nor the country so thickly settled, farm land costing from \$50 to \$60 per acre. Silk raising is one of the chief industries.

#### The Attendance.

A count of the assignment stubs on file in the Secretary's office, made on January 16, *i. e.*, thirteen days after the beginning of the winter term, showed the following actual attendance in the different courses:

Preparatory	
Freshmen	٠.
Sophomores	٠.
Juniors	٠.
Seniors	٠.
Graduates	
Specials	
Short Course in Domestic Science	٠.
Short Courses in Farming and Dairying	
Total	

Of these 1041 were young men and 402 young women. A number of students and graduates were not fully assigned at that date, and several had taken conditioned work, so that the number was probably above 1450. We shall give additional winter-term statistics later on.

There are 90 first-term short-course farmers here this winter, ranging in age from 17 to 52 years, with an average of 21.9. The dairy short course has 22 students, whose ages range from 18 to 32 years, with an average of 22.5. The average of the first-year students is 20.2 years, and is a little higher than usual.

## THE INDUSTRIALIST

Published weekly during the College year by the Printing Department of the

## Kansas State Agricultural College Manhattan, Kansas.

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#### Local Notes.

The Board of Regents will meet on January 24.

Professor Dietrich, of the Illinois College of Agriculture, visited College January 13.

President Nichols attended farmers' institutes at Stockton and Minneapolis last week.

Miss Jones, the stenographer for Professor TenEyck, is in the hospital, ill with typhoid fever.

The annual intersociety oratorical contest will be held in the Auditorium on Saturday, January 27.

The College has just received a fine Barred Rock cockerel, donated by Wm. Vesper, the Barred Rock specialist of Topeka, who has about three hundred very fine ones.

The Topeka Journal publishes a line engraving of Prof. J. T. Willard, of this College, but the artist might have done somewhat better without danger of flattering the victim.

The second annual meeting of the Kansas Corn Breeders' Association will be held at this College January 22 to 24. The first meeting will be held in the evening of January 22. A general program was published in last week's Industrialist.

The oiled road in front of the College campus has stood the winter well, except in a few places where the oil penetrated the soil less than six inches. The half-mile which was oiled last September required 4400 gallons of residuum oil, for which the College paid one and one-half cents per gallon at Cherryvale, Kan. The freight cost an equal amount, making the total expense for material about \$140. The experiment seems to fully verify the claims made for the oiled roads in southeast Kansas. We hear that the Manhattan horsemen are projecting oiling the half-mile drive in the City Park this spring.

Professors Valley and Brown are busy with preparations for the second annual concert of the Musical Department of the College, which will be given March 8. The principal part of the concert will be by the Choral Union, a mixed chorus of 175 voices. They will be assisted by the violinist, Frank Winter, of Chicago, Olof Valley, basso, professor of music in the College, and by several student soloists. The chorus will sing from "The Messiah," "Creation" and "Faust." The soloists will render "Bravest Hearts," "Flower Song," "Calf of Gold," and "Jewel Aria," from "Faust." The College orchestra and other musical organizations will also take prominent parts in the program.

For the production of Ben Hur at Topeka on February 1, 2, and 3, the Rock Island has given a special rate of \$2.05 for the round trip. Mr. Evans, the agent, says that if a sufficient number will go for the Saturday night performance, arrangements will be made for a special train.

The Faculty is discussing a program for celebrating Washington's birthday. The twenty-second of February is celebrated by special exercises in all common schools of Kansas. In past years the College used to provide a literary and musical program for the students, but with the growth of the institution the usage became obsolete, chiefly because there was no room large enough to hold the congregation. The Auditorium, however, makes a general gathering possible.

Sixteen delegates are expected to represent K. S. A. C. at the Student Volunteer Movement Convention at Nashville, Tenn. An effort is being made to have the several organizations of the College represented by one or more delegates. Mrs. Wilder's Sunday-school class voted to send one delegate. The Y. M. C. A. will send two or more, and the Y. W. C. A. one or two. The fraternities have agreed to send one of their number. The only qualifications of delegates are that they are Christian students. As a general proposition, each delegate is expected to pay half of his expenses, which will be about \$13.00.—Students' Herald.

The Domestic Science Department has again commenced the serving of daily lunch dinners for the members of the Faculty. Last week there were twenty-two guests present. These lunches are served to give the students in domestic science drill in cooking and serving, making out menus, purchasing groceries and meats, and to teach them to cook in family quantities. Each girl cooks and serves for a table of six guests one week and makes out her own menu card within an expense limit set by Professor Calvin. The professors and assistants who are guests pay fifteen cents per dinner. The girls take much interest in this highly practical work, and make strong efforts in doing it carefully and nicely.

Lovers' Lane, the beautiful shady drive east of Agricultural Hall, will be improved this spring by cutting the old hedge and by widening and regraveling its road bed. In summer this lane is one of the most beautiful spots in Kansas. We doubt if there is anywhere a double row of finer soft maples in the State. It received its name a quarter of a century ago when Cupid made his first visits at the great technical school of the West, and has retained its nocturnal poetry ever since. The old trees, planted by Professor Gale long before the present generation of students was born, deserve to be preserved—they are book-marks in the history of many a happy Kansas couple. The road has earned a new coat of gravel, and it is to be hoped that coming Faculties and Boards will take proper care of the lane, even unto the third and fourth generation.

#### Corn-Cobs as Fertilizers and as Fuel.

Corn-cobs have very small value as a fertilizer compared with other crop by-products, such as straw or stalks of corn, cane or Kafir-corn, and the farmer can well afford to pay \$1.00 a load for good barn-yard manure for fertilizing purposes rather than ten cents a load for corn-cobs for the same purpose. The following table shows the number of pounds of fertilizing constituents, together with water and ash, which may be found in 1000 pounds of the substances named, in their ordinary air-dry condition. The figures for the composition of corn-cobs and corn-stalks (without leaves) were calculated from the analyses given in Professor Snyder's "Chemistry of Plant and Animal Life." The other figures are published in Professor Roberts' "Fertility of the Land."

MATERIAL.	Water, lbs.	Ash, lbs.	Nitrogen lbs.	Phosphoric acid, lbs.	Potash lbs.
Barn-yard manure (partly rotted). Wheat straw Corn-cobs. Corn-stalks (without leaves). Corn-stalks (with leaves and husks).	143 120	58.0 46.0 13.0 13.5 45.3	5.0 4.8 2.0 4.0	2.6 2.2 0.4 0.5 3.8	6.3 6.3 6.8 6.3 16.4

It will be observed that while barn-yard manure, as it is ordinarily hauled, contains three-fourths of its weight in water, yet it is richer in plant food elements—nitrogen, phosphoric acid, potash—than any of the materials named, except corn-stalks (with leaves and husks).

The essential plant food elements, as contained in the chemical fertilizers sold on the market, may be valued as follows: Nitrogen, 15 cents per pound; phosphoric acid, 7 cents; potash, 4.5 cents. At this rate, calculating the value of the plant food elements in the different materials, as given in the above table, we find that a ton of barn-yard manure will have a value of \$2.42; a ton of wheat straw is worth \$2.30; a ton of corn-cobs, \$1.36; a ton of corn-stalks without leaves, \$1.83; a ton of corn-stalks with leaves and husks would have a fertilizing value of \$3.46. The corn-stalks, as left on the field after pasturing with cattle, have therefore more fertilizing value than corn-cobs. Not only are corn-cobs very deficient in the essential plant food elements, but their woody texture would make them undesirable as a fertilizer, since the cobs would decay very slowly and interfere more or less with the tillage and proper cultivation of the soil.

Corn-cobs have a much greater value as fuel than they do as fertilizers, since 85 per cent of the cob is composed of carbonaceous matter, air-dry cobs actually containing about 40 per cent carbon and 5 per cent hydrogen. Dry hard wood contains about 50 per cent carbon and 6 per cent hydrogen, hence corncobs will have a fuel value nearly equal to that of wood, pound for pound. A cord of dry hard wood weighs from 4500 to 5000 pounds. A double wagon-box full of corn-cobs will weigh in the neighborhood of 1000 pounds. Thus, six loads, or three tons, of corn-cobs is equivalent in fuel value to a cord of hard wood. If wood is worth \$6.00 per cord, corn-cobs have a fuel value of \$2.00 per ton.

Again, we find that the potash is the most valuable fertilizing constituent in corn-cobs, and more than 50 per cent of the ashes of cobs is potash. The cobs could be used as fuel and the ashes spread over the fields; the fertilizing effect would be nearly as great and the results much quicker obtained than if the corn-cobs were used directly for fertilizing. It would require 65 to 70 tons of cobs to make one ton of ashes, but this ton of ashes would contain more than 1000 pounds of pure potash, sufficient to fertilize 20 acres of land if the ashes are as carefully distributed as a chemical fertilizer would be.

Another valuable use of corn-cobs is to char them and feed the charcoal to the poultry and hogs. They relish charred cobs very much, and the charcoal appears to be a healthful tonic or medicine, which helps to keep the fowls or animals in good condition. A plan sometimes recommended for charring cobs is to place them in rather small piles and set fire to them. When the cobs are all on fire and red throughout the pile, put out the fire quickly by throwing water on it. The charred remains of the cobs may be crushed and fed to stock, mixed with their feed, or the charcoal will be readily eaten by poultry, and also by hogs, if placed in open boxes or troughs in the poultry yard or hog pen.

#### Musical Activity at the Agricultural College.

The Tatarrax Glee Club of the Kansas State Agricultural College has been practicing for some time with the object of making trips to nearby towns in the spring. About 25 men will be in the company, which will be assisted by Prof. Olof Valley, basso.

The Choral Union, mixed chorus of 175 voices, is now making extensive preparations for the annual concert, which will be given about March 8. Grand opera, by some of the world's greatest composers, will be rendered, such as choruses and solos from "Faust," by Gounod; also parts from the "Creation," by Haydn, and from the "Messiah" by Handel. The chorus will be assisted by the glee club, by Professor Valley, and by several vocal and instrumental soloists, among them Frank Winter, a noted Chicago violinist.

The Kansas State Agricultural College Concert Band has also arranged a number of trips to nearby towns in the State. This organization won merited fame last fall as a participant in the Kansas City Priests of Pallas parade. It has about thirty-five members, all students, hence from all over the State. The band is neatly uniformed and well equipped with high-class instruments. Its fine appearance adds greatly to the excellent programs of popular and classical music presented to music lovers, and the programs are worth traveling miles to hear. Ten instrumental soloists and a male quartet will assist. Asst. Prof. R. H. Brown, conductor, directs his men from memory, and he does it with an easy and charming grace. The concerts begin at Wamego, February 21, to be followed with others later.

#### Alumni and Former Students.

- J. M. Scott, senior student in 1903, assistant in animal husbandry in the New Mexico Experiment Station, is the author of bulletin No. 55 of that station, on "Tuberculosis in Cattle."
- C. A. Scott, '01, of the Bureau of Forestry, and located at Halsey, Neb., will give a course of lectures this month at the University of Nebraska on "Forest Reserve Management and Nursery Practices."

Carl Wheeler, junior, and Caroline Carls, freshman in 1904, were married Tuesday, January 16, at the residence of her parents, Clay Center, Kan. Congratulations and best wishes will be gladly bestowed by numerous friends.

G. O. Kramer, '05, has been at Storm Lake, Iowa, in charge of Wm. Miller's "Lakeside Herd" of Angus cattle. He stopped at Manhattan and the College a few days on his way to Wakefield, Kan., where he will take charge of F. M. Gifford's herd of Shorthorns.

Bradford Dougherty, '96, was married October 11, 1905, to Miss Mabel Carr, of Kansas City, Kan. Mr. Dougherty has a half interest in the firm of Maunder & Co., of Kansas City, Kan., dealers in books and stationery. The firm has been very prosperous since Mr. Dougherty's connection with it.

C. F. Doane, '96, dairy expert in the division of dairying, United States Department of Agriculture, was in Kansas City on business this week and took advantage of the opportunity to visit his parents and the College. The changes that have occurred during the four years since Mr. Doane's last visit please him as much as they do others.

Harriet (Vandivert) Remick, '97, will have the sympathy of many friends in the loss of her mother, who died at Manhattan, Tuesday, January 16, 1906. For several years she has resided here and had built a beautiful cottage home. She will be much missed by many friends and acquaintances. The funeral services here took place Thursday, but the burial was at Bethany, Mo.

Scott S. Fay, '05, has gone to the University of Nebraska, where he has secured employment in the chemical department, and will enter the University for study at the beginning of the next semester. His address is 1240 South street, Lincoln, Neb. He says that H. F. Bergman, '05, is enjoying his work there in botany very much. L. B. Pickett, '05, is also there, but at present partially disabled by an injured foot.

E. M. Johnston, junior last year, and Gertrude Haulenbeck, a student at one time, were married at the residence of the bride's parents, Wednesday evening, January 17. The occasion was marked by elegant simplicity. Mr. Johnston is in the employ of the Long Bell Lumber Co., of Wichita. After February 18, Mr. and Mrs. Johnston will be at home at 1247 South Water street, Wichita. Miss Haulenbeck will be much missed from musical and social circles of Manhattan.

# INDUSTRIALIS I

Vol. 32

ISSUED WEEKLY BY

No. 18

Kansas State Agricultural College Manhattan



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## THE INDUSTRIALIST.

Vol. 32. Manhattan, Kan., Jan. 29, 1906.

No. 18

#### Some Points in Nursery Inspection.

SINCE the coming of the San Jose scale into eastern orchards the question of nursery inspection has become one of great interest to most fruit growers. It has been popularly held, more generally than the truth will warrant, that nurseries are the great centers of dissemination of many noxious insects and plant diseases. Most of the anti-pest laws have been enacted on this principle, while orchards have been left unsearched. To the writer this position seems unwarranted by the true demands of the circumstances. Nurseries are far more generally well cared for.

Nursery methods are much less careless and deserving of criticism than are those of the average orchardist. The business of the successful nurseryman is one demanding much greater attention and care in details, and suffers much more severely from lack of these. In consequence of what seems a discriminating view, the nurseries in most states are now subject to careful inspection, and unnecessarily rigid laws are drawn for the protection of the tree buyer from the tree seller, while the tree grower is left to cultivate all sorts of pests according to the degree of carelessness which his commercial success will allow or his personal taste and habits will determine. In our State no law exists, but owing to the necessity for a certificate of inspection before shipments from Kansas nurseries can enter most other states, the large growers in Kansas have secured the services of nominal official inspectors for their own protection, and to avoid the delay and loss consequent upon quarantine or destruction of their shipments into states where such laws are enforced.

It was the fortune of the writer, as official entomologist of the State Horticultural Society, to be called upon to make the first inspections in this State, and during the eight years of his service as inspecting officer some observations have been made that possibly have a general horticultural interest.

As would be supposed, considering the original cause of the anxiety leading to the enactment of inspection laws, the San Jose scale was at first practically the only pest whose presence was to

be determined by inspection. No great attention was paid to other insects or to plant diseases, except as a matter of general interest. Soon, however, more particular attention was demanded as to minor pests, and the nature of the examination was thus somewhat varied. As a result it has been disclosed that, with one or two exceptions, in the matter of the responsibility for pest dissemination it is really the other ox that has been gored, the nurseryman contends with pests that originate in the ill-kept orchards and the other tree plantations about him. This is of course not the case with a few of the really dangerous forms, the crown gall of the apple, and the rosette or yellows of the peach, for example, but in the case of some undesirable insects and many fungous parasites it is certainly so.

It may be a matter of interest to state the general method of in-When examining for the first time a nursery plantation, the first care is to note the character of the surroundings in the way of tree growth. Old fruit-trees near by are carefully examined as possible unsuspected sources of the more serious pests. Orchards kept for the production of cions, or grafting wood, in connection with the nursery are critically examined as a matter of course. As a rule, where cion trees show at a cursory examination only a good healthy growth and appearance it is thought sufficient in most localities to examine carefully a representative number of the trees of a variety in each block, since it is usual that all the trees have come from the same source, and unlikely that one will be infested where all others remain free. Wherever a tree lacks in the characteristic vigor of its variety it is given a more searching examination to determine the cause. Any unusual mal-development calls for the same care. It is necessary also to inquire into the sources of the bud sticks and cions used in the propagation of the trees in the nursery, and if any are obtained from uncertified sources, or from infested localities whether certificated or not, it is important to examine more critically the blocks of such trees as they stand in the row. Blocks of trees held over, and grown beyond the usual age and size of marketing, are also to be more carefully gone over. The same is especially true of stuff "lined out," the nurseryman's term for material which, having been dug for sale, or bought elsewhere to fill orders, and being left on hand at the close of the season, is reset in nursery rows for sale where possible the succeeding year.

If all such doubtful material is carefully examined, the inspection of the thrifty young stock in the rows is a simple matter, and is made by passing slowly to and fro across the block at different places, noting the general condition above ground, and for certain troubles, pulling or digging a sufficient number of the less vigorous plants to discover the presence of any root infestation. If conscientiously done, such an inspection should be satisfactory, and no serious case of infestation should escape discovery.

As a matter of fact, leaving out of the question the presence of certain scale insects, the crown gall of the apple, the peach yellows or rosette, and possibly the apple root louse or aphis, the other insects or diseases found sometimes in nurseries need not be the occasion of special alarm to the tree buyer, for the nursery tree, though perfectly clean when carried to the orchard, will stand, as regards these pests, only an equal chance with the infested tree for successful growth in its new relation. Further, the writer is confident from observation that this is also true with some of the exceptions above mentioned, especially with the crown gall, and the apple root louse or aphis, the visible presence of either of which, however, will in most Kansas nurseries consign the infested tree to the brush heap before it reaches the packing ground.

It is to be noted in passing that as a rule the tree grower, the healthy growth of whose trees is really a most valuable asset, is quick to discover blemishes and unusual conditions in plants, and a condition of a serious disease or insect attack is not likely to escape his notice. While cupidity may tempt some, especially in seasons of shortage, to pack undesirable stock, such practice is certainly not usual with most growers. Moreover, customary methods of propagation lend little aid to the dissemination of dangerous pests. The bud sticks of the stone fruits are usually taken from yearling trees of the proper variety growing in the nursery Apple cions are often taken entirely from the two-year-old trees on the grounds, though again the larger propagators may find it necessary to provide larger quantities by the planting of cion orchards. In either case, however, from a habit determined simply by the mechanical facility of the work, the wood used is the cleanest, strongest and most vigorous, and consequently least likely to carry pests in any form. If, as is usually the case, all stock is marketed at once on reaching salable size, and all plantations are thus kept annually or biennially renewed, it is readily to be seen that the chance for the dissemination of dangerous insects or diseases is reduced to the minimum.

By way of specific mention it is worth while to note more fully certain insects of diseases that may be carried in the transfer of trees from the nursery to the orchard.

Crown gall, whether one or several diseases, is apparently not

dependent for its spread on modes of propagation of the fruit-trees subject to its attacks. Nor is it due to planting such trees over and over again in the same soil. It is more abundant in some years than in others. It will be found more or less in every nursery every year, sometimes causing material loss, though the trees be grown in soil never before in nursery stock, or near former plan-Although a tree infested from the nursery is not by that fact doomed to early death, and while trees perfectly clean when planted in the orchard may soon become attacked though in new ground, nursery trees showing the galls are to be rejected by the buyer, and as stated above are usually discarded by the salesman or packer on the grounds where grown. The presence of this disease may often be detected above ground before the trees are lifted, by the growth, after the last trunk pruning, of light green shoots arising near the surface of the soil, though such growths are not certain indications in some seasons and soils.

Peach yellows and rosette are scarcely to be detected on yearling trees in the nursery, as either disease, if they are distinct, does not show itself unmistakably in trees of a year's growth. But there is no inducement, and little opportunity, for the propagation of either, as diseased trees will offer budding wood that no nurseryman would think fit for the purpose. In the entire experience of the writer, these diseases have not been discovered in or near any nursery in Kansas where peaches are propagated for sale, and indeed they are very rare in orchards of this tree.

The black knot of the plum, against which some states have enacted laws, may be similarly considered. It may be said to occur with us only, and then rarely, in neglected orchards, and in wild plum thickets, and to be practically beyond the danger of dissemination through the nursery trade in our State.

The blight of apple, pear and quince is a disease occurring everywhere that these fruits are grown. Few varieties if any are exempt, though some are much more susceptible than others. It is not communicable in the ordinary sense through the transfer of infested trees, though of course, aside from that danger, no properly instructed planter will accept a tree showing the disease. With this disease the nurseryman is the equal and often the greater sufferer with the planter, and at the worst the latter can rarely charge the grower with responsibility for its spread. It is commonly through accident, if at all, that blighted trees are delivered to the buyer, and if planted they really constitute no additional menace to the safety of the surrounding trees.

With certain noxious insects the case is different, though as a

rule, owing to methods of propagation, as above noted, the chances for the spread of such pests are reduced to a minimum of danger. Where the necessary inspection has been carefully made, and the sources of the wood used in propagation, especially if from old trees, has been thoroughly examined and found free, properly speaking all possible precaution has been taken. It is true that inspection of the trees in nursery row cannot be made so thorough that the scale insects, for example, may not be overlooked if they exist. But for these and similar pests it is far more important to examine the surroundings, or neighboring growth, and especially to scrutinize all cion trees or those from which the buds are taken for propagation. It is also necessary to know the sources of such material where bought of other nurserymen, as is often The fear of the introduction of such pests, however, makes the nurseryman himself careful to buy only of those whose stock and premises are inspected and certified as exempt.

Complaint is sometimes made that the grower is responsible for the introduction of the borers, especially of the flat-headed borer. From the known wide distribution of this insect, the chances are that such complaint is not well grounded. Nursery conditions are not usually such as to invite the work of this insect, which prefers not to attack young trees with trunks abundantly shaded, as they are in the rows and in thrifty growth. The condition of the newly set orchard, however, does sometimes invite such attack. The fact also that the life of this borer is annual and not longer in its duration is also against the presumption of its nursery origin.

In one case occurring to the writer, the canker-worm was found under conditions facilitating its transfer on nursery trees—two-year-old apple. The adult female was found in December, climbing the young trees for the purpose of depositing eggs on the twigs. It may thus easily have followed that the tree with its undesirable burden was the means of the introduction of this insect into an orchard hitherto uninfested. This species, however, is not regarded as dangerous within the meaning of inspection laws.

Insects of similar relation are the tent caterpillars, the apple leaf crumpler, the tussock moth, and the plant lice of apple, peach, and cherry. In either of these, the wintering young, or the eggs, may be carried on nursery trees. But the fact that they are all likely to be already present in districts where these fruits are grown renders of little avail any special effort to prevent their transmission. In any event the final burden of their subjugation rests with the orchardist.

E. A. POPENOE.

#### The Government of England.

It is worth our while as Americans to stop occasionally and consider the government of other nations than our own. England's politically responsible cabinet government has many points of interest. England's government is, in form, a monachy. Her present sovereign, Edward VII, who came to the throne in 1901, is a member of the House of Hanover. This family rules in England by right of the Act of Succession passed by Parliament in 1701. This act provides that on the death of Queen Anne without heirs the crown should devolve upon the Electress Sophia of Hanover or her descendants, being Protestants. Thus the right to the throne of England depends on an act of Parliament, and the succession could be changed by Parliament at any time.

In theory, the government of England is an absolute monarchy. In theory, the king makes as well as executes the laws. The courts are the king's courts of justice. We read of his army and of his majesty's ships. In theory, the king can do no wrong and hence cannot be punished. We recall that England has an unwritten constitution, though many important parts of it are definitely written. Now, the tradition and practice of the government differ widely from the theory. The king has a right of absolute veto, but has not exercised this right since 1707, and he always makes his laws in the exact words of Parliament's request. Instead of actually ruling the cabinet, the king has not even at-

tended its meetings since Queen Anne's reign.

Until the revolution of 1688, the Parliament repeatedly tried to restrain the king by positive restriction upon his powers. Since that date they have permitted the theory of kingship to remain as of old, but have gradually changed the method of proceedure. example, instead of passing a law that the king must summon Parliament annually, they have adopted the practice of granting supplies or voting appropriation for only one year at a time. though the king can do no wrong, the theory is that his ministers of state and officers of the government can do wrong, and it is said that here the theory shades off into fact. These officers can, of course, be punished. Formerly, this was usually done by the tedious and troublesome method of impeachment, but under the first two Hanoverian kings, George I and George II, the modern form of politically responsible cabinet government was developed. These two men thought more of their electorate of Hanover than they did of their kingdom of England. They did not even speak the English language. They never vetoed an act of Parliament nor attended a cabinet meeting. They permitted a Whig Parliament

and a Whig cabinet with the first real English prime minister, Walpole, to rule England. Thus the precedent was well established.

But what are some of the essential points of cabinet government? The cabinet is now the real executive of England. body of ministers appointed by the crown from the members of Parliament, and responsible to the House of Commons. There is no fixed number as in America. It is composed of at least eleven members, but sometimes has as many as nineteen or twenty. The present cabinet, appointed last month, has nineteen mem-The preceding cabinet had eighteen members. For example, the Chief Secretary of Ireland may be a member or he need not be. At present that office is filled by James Bryce, who is a member of the cabinet. The Prime Minister is not any special officer, as our own Secretary of State. Rather, the Prime Minister is the actual political leader and may hold any of the The present Liberal Prime Minister, Sir ministerial offices. Henry Campbell-Bannerman, is First Lord of the Treasury, as was his conservative predecessor, Balfour. Some of the offices, such as that of Lord President of the Council, have practically no definite work connected with the office. Such an office is filled by a leading politician. The Chancellor of the Exchequer must be from the House of Commons.

The cabinet is theoretically appointed by the King. In fact, he must appoint as Prime Minister the man who is the leader of the party that has a majority in the House of Commons. This man practically selects his own cabinet from the party that controls the House of Commons. Each member of the cabinet must also be a member of one of the houses of Parliament. As such he retains his seat in his own House with full right to debate and vote. In fact he is supposed to defend and work for the passage of government measures—and by government measures here we mean measures proposed by the cabinet, which in England is commonly spoken of as the government. When chosen to a cabinet position from the House of Commons, the member must resign his seat and stand for reëlection to the combined position of representative and minister. See Outlook for January 27, 1906, pages 146, 147.

The cabinet practically takes control of the government. It introduces all the important measures into Parliament. Parliament passes no taxation or appropriation bill except by its request. Each member of the cabinet draws or writes his own bill, but it must be approved by the entire cabinet before it is introduced. Any individual member of Parliament, if he wishes an

important bill passed, presents it to the cabinet with a request that it be favorably considered and introduced by them. thus approved and introduced, if any really important measure should be defeated in the House of Commons, this is taken as proof that the cabinet is no longer composed of the real leaders of the party that is in control of the House of Commons. In such a case the entire cabinet as a body must resign, and another cabinet will be appointed that does represent the majority party. Of course, a formal vote of lack of confidence or of censure would accomplish the same result. The recent change of ministry was caused by a steadily decreasing majority. However, if the cabinet think that the House does not now represent the nation and that the people are really on their side, then the cabinet may dissolve the Parliament, that is, end the term of office of each member and appeal to the people for a new election, or a new cabinet may appeal to the people for confirmation, as is now being done in England. The cabinet must conform to the majority of a newly elected Thus, while it seems at first that the cabinet would have too much influence on the Parliament, it has actually happened in England that the House of Commons controls the cabinet, and the people have a very direct vote in electing the House of Commons. Moreover, we see from the above description that the people are liable to be called on at any moment to settle any important issue of state by electing a new House of Commons.

The Parliament in England consists of two houses, Lords and Commons. The House of Lords consists of five classes of members. One class is by hereditary right. Just here it is of interest to note that there is but one noble in any English family, as a rule. The rest of the family are all commoners. Some members of the House of Lords hold office by creation of the sovereign, either an hereditary title of nobility or simply a life title. Some of the members sit in the House of Lords by virtue of office they hold in the English government. These are the archbishops and the bishops of the Church of England. Also, there are three judicial members who have life positions. For certain cases the House of Lords is the Supreme Court of Appeals for England. In the hearing of these cases these judicial members and the Lord Chancellor alone attend, therefore it follows that a quorum in the English House of Lords consists of three members; for example, two of the judicial peers and the Lord Chancellor. The total membership of the House of Lords is about five hundred ninety-four. fourth class are elected for life, namely, the Irish peers. There are sixty-two of these and they are elected from and by the whole

body of Irish peers, numbering about one hundred eighty. This arrangement dates from the Act of Union of the year 1800. The fifth class of members are elected for a term of Parliament. These are the Scottish peers, seventeen in number, chosen by the whole body of Scottish peers, now numbering about eighty. This arrangement dates from the union of England and Scotland in 1707.

The qualifications for membership in the House of Lords are simply that the member shall have reached the age of twenty-one. The presiding officer is called the Lord Chancellor. He is a member of the cabinet and hence is really chosen by the House of Commons. Neither House of Parliament has a regular general committee system, though special committees are occasionally appointed. The great work done by the committees in the United States Congress is largely done by the cabinet in England. It thus follows that the legislation of England is much better unified than the similar work in America. This is especially true of the budget, taxation, and appropriation of money.

The House of Commons consists of six hundred seventy members, elected from single districts by secret ballot for a term of seven years. Seventy-two of these members come from Scotland and one hundred three from Ireland. The qualifications for members are simply that he shall be twenty-one years of age and self supporting. The members receive no pay for their services. The attendance is poor. Forty members constitute a quorum. They do not need to be a resident of the district that they represent. The House of Commons elects its own speaker. In England the speaker is not supposed to be partisan, but a mere interpreter of rules. If he is a good moderator, he is likely to be continued in office regardless of change of party in the government of England.

The origin of the seven-year term constitutes an interesting bit of English constitutional history. Before 1717 the term of office was regulated by a triennial act. In 1714 the first Hanoverian ascended the English throne. In 1715 the Stuarts attempted to gain the throne. In 1717 the third-year term of the parliament that was elected when George I came to the throne was about to expire. This would require a new election, and the country was in a very unsettled condition. Under these circumstances Parliament passed a septennial act, extending the term to seven years, thus extending their own term four years. Thus the constitution of England was amended by a simple act of Parliament. This is one illustration of the principle that in America an unconstitutional

law is no law, but in England no law (of Parliament) is unconstitutional. No Parliament has yet lasted for the full term of seven years. That is, each Parliament has been dissolved by the King—really by the cabinet—before the expiration of its full term.

The House of Commons may fairly be said to have absolute control over the government of England whenever it chooses to exercise its power. We have already noticed its control over the real executive—the cabinet. It is a truism in government that the control of the purse is the control of power. In England all revenue bills and all bills for the appropriation of money must originate in the House of Commons. The House of Lords may either accept or reject them, but it cannot amend them. An incident of Queen Anne's reign shows how the Commons can force the Lords to yield when they really wish to do so. When William came to the English throne in 1688 the Whig party also came into This party was in hearty sympathy with William in his foreign policy of hostility to France. During the war of the Spanish Succession in Queen Anne's reign, the Tory party gained control of the House of Commons and determined on a peace In order to force their will on a Whig House of Lords they required the sovereign to create twelve new titles of nobility and confer the titles on men who would take seats in the House of Lords and vote for the measures desired by the Tory House of Since that time it has never been necessary actually to perform a similar act—the mere threat has proved sufficient. For years the House of Lords formed merely a slight conservative force in the government, but recently they have shown more power and have had a real influence.

In connection with the American Revolution it is interesting to note that the form of cabinet government had been quite fully developed in England before George III came to the English throne in 1760, and hence it would seem fair to blame the people of England for any errors of government. But we must remember that the eighteenth century was a period of notorious and open bribery in England, and we should recall that when George III came to the throne it was with a determination to realize his mother's repeated injunction to "be King George, be King." So he soon gathered about him in Parliament and cabinet a king's party by means of this bribery. This was especially easy because of the conditions existing in England before the great parliamentary reform measures of 1832. England does not take a regular periodical census and then apportion her representation according to population, but rather apportions her representatives among

the various towns by decree of the King or act of Parliament at very irregular intervals. Now, in the reign of George III there were large, new manufacturing towns that had no representatives, while other so-called towns that had no resident voters each sent two members to Parliament. The landlord nominated and elected the representatives. Thus we see how easy it was to buy the election of members to Parliament. It was also easy to buy them after they had been elected. By the parliamentary reform act of 1832 representatives were apportioned among the towns very nearly according to population. The franchise, or right of voting for those representatives, was also greatly enlarged. Similar acts repeated at intervals since then have given England a very fair representation and a very free vote. The right to vote now depends on a household or lodgier franchise consisting of seven pounds sterling a year.

The established church of England is the Episcopalian. In Scotland the Presbyterian church has been established since 1560. In Ireland there is now no established state church, but the Catholic faith predominates.

In this connection students should consult the Review of Reviews for January, 1906, especially pages 1, 20, and 33-39; the February number of Review of Reviews; the Outlook; the Stateman's Year-Book, especially pages 3-11; Wilson's The State, etc.

RALPH R. PRICE.

January 30	Donneton
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Farmers' Institute Dates.

February 9. Burden
February 10. Howard
February 12. Eureka

Some day it may be different: In many homes and schools, children hear of Fairbanks but not of Burbank; of General Wood, but not of Jethro Wood; of Louisa May Alcott, but not of Bronson Alcott; of Hancock, but not of Babcock; of Reid and Riley, the diplomat and the poet, but not of Reid and Riley, who patiently and with painstaking developed excellent corn. Are not those whose names are less familiar as deserving our consideration for what they have done to contribute to our material wealth and comfort as as those whose names are associated with war, statecraft, or letters?

### THE INDUSTRIALIST

Published weekly during the College year by the Printing Department of the

#### Kansas State Agricultural College Manhattan, Kansas,

PRES. E. R. NICHOLS. Editor-in-Chief PROF. J. D. WALTERS. Local Editor PROF. J. T. WILLARD. Alumni Editor

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#### Local Notes.

Professor Kammeyer had the grippe on Wednesday and Thursday.

The Regents attended chapel exercises last Thursday and Friday mornings.

The "Campus Restaurant" serves over 150 dinners to College students and employees every day.

The Board of Regents were in session at the College on Wednesday, Thursday, and Friday.

Pres. and Mrs. E. R. Nichols received the members of the Board and Faculty at their home on Thursday night.

The Alpha Betas gave a social to themselves and invited guests, Monday evening, January 22, in the Domestic Science Hall.

Prof. C. A. Zavitz, of Guelph, Ontario, gave the Agricultural classes, last Friday, a lecture on "Wheat, as Grown in Canada."

Professor Erf attended the Breeders' Association at Lincoln last week and the Western Buttermaker's Convention at Kansas City this week.

On Saturday, January 27, the sixth annual inter-society contest was held in the Auditorium, but as the Industrialist goes to press on Saturday morning we must ask the readers to wait till next week for the rank of the orators.

The students were assigned seats in the Auditorium this week, and the large hall is now well filled during the morning chapel exercises. The short courses and the preparatory department occupy the galleries and the regular four-year courses the main floor.

The Animal Trap Company, of Abingdon, Ill., has followed the example of the Oneida Company in supplying the Department of Zoölogy with several dozen traps for a series of experiments testing the efficiency of various makes designed to catch gophers and moles.

Mr. M. F. Thomas, the new assistant in the Department of Mechanical Engineering, is a ('01) graduate in the Mechanical Engineering course of the Agricultural and Mechanical College of Texas. After his graduation he worked as draftsman for the T. W. & D. C. R. R. for one year, and held the position of assistant in engineering at the Oklahoma Agricultural and Mechanical College for two years. Mr. Thomas comes to us well recommended, and his work at this College during the past four weeks shows that he is at home in the class room.

The next number of the College lecture course will be a concert by the Cleveland Ladies' Orchestra, January 30. The troupe consists of eight specialists on various orchestra instruments, and Director Alfred Metzendorf, the great Cleveland leader and violin soloist.

Henry Avery & Son, of Wakefield, Kas., have notified the Animal Husbandry Department that they will ship their entire stock of Percheron horses to the College February 17. The animals will be at the disposal of the agricultural students for judging purposes for one week. On February 24 there will be a public sale of the stock in the College arena.

The Kansas Corn Breeders' Association, which was in session at the College during the week, was a great success. There were several hundred farmers present from all parts of the State. A report of the meeting, by Professor TenEyck, will be published in the next number of the Industrialist. There were about fifty entries of ten ears each in the corn contest of the association. The award list will also be published next week.

#### A Correction.

Last week there appeared in the Kansas City Star an item with reference to the seed investigations conducted by Prof. H. F. Roberts, of the Kansas Experiment Station, in which it was stated that "It is contended that the seed dealers of the State are deliberately swindling the public." The statement in quotations was and is an error on the part of the Star, in that their correspondent in Manhattan sent them an item a part of which read, "It is not contended that the seed dealers of the State are deliberately swindling the public. They are often the victims of dishonest producers." These sentences were quoted from the article written by the professor. The second sentence of the quotation shows clearly that it was not meant that the dealers are swinding the public. The Experiment Station people do not believe any such thing.

The Star has been requested to rectify the error on their part, and we have no doubt that they will do so cheerfully. A number of protests have appeared in letters sent to the Experiment Station—protests in which the writers are entirely correct. One wholesale dealer says: "In our opinion there is not a dealer in the State of Kansas, or in the whole West, who would adulterate alfalfa or any other seed. We clean impurities out as well as we can, but in no case is any adulteration made. We do not believe any dealer is deliberately swindling the public. Of course, there is always a certain class of people who want to buy cheap, and these parties can not get the best and cleanest seed for a low price. Whenever a man wants to buy the best and purest seed, we think every dealer here (Lawrence, Kan.) will give it to him,

provided he is willing to pay the price."

Here is probably the whole difficulty—the farmer will not pay for good seed, and then wonders why he is "cheated."

#### Alumni and Former Students.

The address of C. C. Cunningham, '03, is now Forest Home, Ithaca, N. Y.

C. P. King, '98, now gets his Industrialist at Baxter Springs instead of Chanute, Kan.

Dr. L. B. Jolley, '01, has hung out his shingle at Gurney, Ill., and is pleased with his location. He reports business as fine and growing.

O. H. Elling, '01, attended the recent meeting of the Kansas Corn Breeders' Association and presented a paper on "Breeding a Corn for Western Kansas."

W. R. Hildreth, '02, of Altamont, Kan., A. L. Noyes, '85, of Zeandale, Kan., O. M. McAninch, '02, and L. V. Sanford, '04, attended the Corn Breeders' Association this week.

S. J. Adams, '98, Cheyenne Wells, Colo., is preparing a map of Cheyenne county, Colorado, and writes to the best source of information for advice concerning getting the plate made and the printing done.

C. P. Hartley, '92, of the Bureau of Plant Industry, delivered an interesting lecture at the meeting of the State Corn Breeders' Association on the "Production of Good Seed-corn." It was illustrated by many very fine lantern slides.

Ava (Hamill) Tillotson, '92, is now a registered pharmacist and is managing a drug store at Latham, Kan. As the central office of the long-distance phone is in the store, she invites her friends to call her up when in need of anything in the drug line.

M. A. Carleton, '87, cerealist of the Bureau of Plant Industry, visited the College this week in the interest of coöperative experiments that are conducted by the Experiment Station and the Bureau of Plant Industry at McPherson and Hays and planned for at Garden City.

Bulletin No. 103 of the Colorado Experiment Station is by W. H. Olin, '89, professor of agronomy in the Colorado Agricultural College. It treats of the thorough tillage system for the plains of Colorado, with special reference to dry farming and with incidental information on many other points.

Geo. L. Clothier, '92, until recently assistant forest inspector in the Forest Service, is the author of bulletin No. 65 of the Forest Service, "Advice for Forest Plantings in Oklahoma and Adjacent Regions." It contains valuable directions for handling forest trees and plans for forest plantations on farms so as to combine protection from wind with timber production.

Royal S. Kellogg, '96, forest assistant in the Forest Service of the United States Department of Agriculture, is the author of bulletin No. 66 of the Forest Service on "Forest Belts in Western Kansas and Nebraska." The bulletin gives much valuable information concerning forest growth near the limits of its existence, and may be studied with profit by residents of those regions.

# INDUSTRIALIST

Vol. 32

No. 19

ISSUED WEEKLY BY

Kansas State Agricultural College Manhattan



PUBLISHED BY
PRINTING DEPARTMENT
J. D. RICKMAN, Supt.

Entered at post-office, Manhattan, Kan., as second-class matter. Act of July 16, 1894.

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## THE INDUSTRIALIST.

Vol. 32.

MANHATTAN, KAN., FEB. 5, 1906.

No. 19

#### Kansas Corn Breeders' Association.

THE second annual meeting of the Kansas Corn Breeders' Association was held at Manhattan, at the State Agriculture College, January 22 to 24. The first session was called for Monday evening. An audience of students with a good sprinkling of farmers numbering in all from 500 to 600 attended the first meeting. Hon. Edwin Taylor, vice-president of the association, acted as chairman.

The exercises were opened with a selection by the College band. Mr. Taylor then gave an excellent address on "Reciprocity and Markets." He very much favored a system of reciprocity with other nations by which better markets may be made for our agricultural products. He was in favor of a protective tariff when it protected the producer or manufacturer who needed protection, but he heartily condemned the system of protection which protected the trusts and monopolies of the country, allowing them to charge high prices for their products for home consumption, thus making an unfair profit at the expense of the consumer in this country. Mr. Taylor's paper was sharp and to the point. He is an interesting speaker and held his audience to the end of his address.

At the close of Mr. Taylor's remarks he introduced Prof. W. J. Spillman, of the United States Department of Agriculture, at Washington. Professor Spillman spoke on "Mendel's Law and its Applications to Practical Problems in Breeding." Professor Spillman is an enthusiast on this subject. In an interesting way he explained the working of the law and gave actual results which he had collected supporting the theories advocated. According to Mendel's law, when species or varieties of plants or animals are crossed in breeding, the progeny in the third generation breaks up into distinct types in which a dominant character occurs in the individuals, thus making it possible by selection to originate and perpetuate a new variety of plants or animals having certain characteristics or qualities superior to those of the original parents. Professor Spillman, always an interesting speaker, was even more interesting and enthusiastic than usual, imparting some of his en-

thusiasm to the audience which listened to him with the closest attention for more than an hour, while he explained and demonstrated the working of this wonderful law in breeding.

The morning session of January 23 was opened with a farmers' class in corn judging. Farmers and visitors were invited to enter this class. Professors Ten Eyck and Shoesmith in brief lectures explained to the class the methods of corn judging and the proper use of the score-card. Assistant Kyle and several of the advanced students also acted as instructors in assisting the farmers to judge the corn. Great interest was taken in this work by all those who entered the class, and the professors in charge were much pleased with the results. This class was continued on January 24, both in the forenoon and afternoon, many of the farmers staying over one day to continue their work in corn judging.

At 10 A.M., January 23, the regular lecture program was opened by a paper from Mr. O. H. Elling, of the Kansas Ft. Hays Branch Experiment Station. His subject, "Breeding a Corn for Western Kansas," was well handled. Mr. Elling laid great stress on the cultivation of the soil and conservation of soil moisture, maintaining that this was the first essential in the production of good crops and better-bred corn for the West. He clearly explained that it was necessary to adapt corn to the western conditions of soil and climate. Seed-corn brought from eastern Kansas would not produce and mature in the western part of the State. The west must breed its own corn and grow its own seed. Some work is being undertaken at the Ft. Hays Station along this line. A number of varieties of corn have been tested, and some are being The varieties which have produced well are: selected and bred. Kellogg's Pride of Saline, Smith Center Yellow, and Early Mastodon.

Mr. Elling's paper was followed with an address by Prof. C. A. Zavitz, of Guelph Agricultural College, Ontario, Canada. Professor Zavitz spoke on "Some Experiments With Wheat." His talk was one of the most interesting of the series of excellent lectures which were given at the meetings. He illustrated his discussion with charts containing figures and showing the methods of cropping and breeding used at the Guelph College. Some of the results which have been secured by the experiments at that College are interesting and valuable. For instance, it was found that in one year's grading of seed into large and small seed, the results with several crops were as follows:

Crop.	Large Seed. Bu. per acre.	Small Seed. Bu. per acre.
Oats	62.0	46.6
Spring wheat	21.7	18.0
Winter wheat	46.9	40.4
Barley	53.8	50.4
Field peas	28.1	23.0

Some work has been done at Guelph in breeding crops from one individual plant and seed. Professor Zavitz had figures showing the yields from the original seed as compared with the selected seed, as follows:

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Crop.	Original Seed.	Selected Seed.
Six-rowed barley	68.4	78.3
Two-rowed barley	44.8	58.6
White oats	86.1	91.3
Black oats	79.3	89.0
Spring wheat	29.7	36.4

These results had been secured in three years of selection. Interesting figures were given showing the amount of grain which has been produced from one kernel of grain of each of several cereal crops. The six-rowed barley had produced 1929 pounds of grain in the three years; the white oats, 2102 pounds; the black oats, 3439 pounds; while spring wheat had only produced 242 pounds from a single seed in three years.

Another interesting experiment which was demonstrated was the effect of growing certain crops on the same farm for a series of sixteen years without changing seed. This experiment was begun in 1890. The results were given as follows:

	Averag	e yield i	n 4-year	periods.	
Crop. Oats, 8 varieties Barley, 8 varieties Potatoes, 7 varieties	1890-'93 74 50 120		98-'01 83 63 218	'02-'05 100 63 249	For 16 yrs. 84 58 201

In these experiments the seed was graded well each year and only the best grade of seed was sown. It is evident from the results that in Ontario at least it is not necessary to change seed of the crops named. In concluding his address Professor Zavitz referred briefly to the cross breeding of wheat and other cereal grain and gave some interesting results.

The final address of the morning session was given by Prof. W. J. Spillman, who spoke on the subject, "The Value of Good Management on the Farm." Professor Spillman's time was limited in this address, since he was obliged to leave on an early train, but in the three-quarters of an hour in which he spoke he stirred the enthusiasm of his audience to the highest pitch. In his characteristic way he illustrated the value of good management on the farm as compared with poor management. He said that one of the faults with many of the farmers was that they worked too many hours.

"A man who works sixteen hours a day in the field or at hard manual labor," said Professor Spillman, "is really a farm laborer and not a farm manager. He ought to have a manager to oversee him in order that the farm may yield the best results. It is impossible for a man to work hard twelve to sixteen hours a day and then make much use of his brain after his manual work is done. In the management of the farm thinking is worth more than labor to a man with brains. Scientific farming is practical farming." He illustrated his points by the history of two farmers. One by hard work without brains made a failure of farming and lost his farm; the other worked as hard but less hours on the farm and used his brain part of the time. Last year from an 80-acre farm his income was \$4700.

Professor Spillman referred to the necessity of keeping farm accounts, and also advocated that the farmers read more regarding their profession. Every good farmer should take several good agricultural papers and have a library of up-to-date agricultural books. At the conclusion of Professor Spillman's remarks he was warmly applauded.

At the afternoon session Dr. C. G. Hopkins, of Urbana, Ill., gave an address on "Practical Corn Breeding for Improvement in Yield and Quality." Dr. Hopkins is one of the first men who became interested in the breeding of corn by the methods which are now being advocated. In his address he laid great stress on methods of breeding, and clearly explained the methods which are practised at the Illinois Experiment Station, both as regards selecting the breeding ears, planting the corn in definite plots and rows, and keeping accurate and easily accessible records of the results. He also devoted part of his talk to a report of the interesting results which have been secured at the Illinois Station in breeding corn for higher protein and greater oil content in the kernel. In nine years breeding the oil in a certain strain of corn has been increased from 4.7 per cent to 6.96 per cent, an increase of almost 50 per cent in the oil content of the kernel. The protein in another strain had been increased during the same interval from a little over 10 per cent to more than 16 per cent, an increase of over 50 per cent in the protein content of the kernel. The Illinois Station has done good work in improving the yield of corn, not only in the selection of varieties which are being bred at the Station but throughout the state. The average yield of corn for the last four years in Illinois has been 36.8 bushels against 33.9 bushels for the previous four years. Dr. Hopkins believes that the average yield may be increased ten bushels more per acre

during the next four years at the present rate of progress. Of all the addresses given in the several meetings, this one by Dr. Hopkins was perhaps of greater value than any others to the students of the College and the professors who were present to hear it. The methods and plans of breeding corn explained and advocated by Dr. Hopkins were perhaps a little too intricate and detailed to appeal to the average Kansas corn farmer as practical for him to carry out, but to the student and experiment station worker the possibilities of securing great results in corn breeding were made more clear and interesting by this excellent address.

Following Dr. Hopkins' address, D. Ward King, of Maitland, Mo., spoke on the subject of "Good Roads." Mr. King is the originator of the plan of road working by what is called the King drag, now being so successfully used throughout the greater portion of our country. He is an enthusiast on his subject and carried his audience with him. In the first part of his talk he described the different kinds of road construction, referring to macadam roads, gravel roads, earth roads, petroleum roads, etc. A considerable part of his talk, however, was devoted to the making and maintaining of common earth roads by the use of a grader and the King road drag. He showed how every farmer could maintain the road along his farm without cost to himself. fact, by having better roads on which to haul his crops to market the investment which he would make in the labor required to keep the road in repair would return more interest than any other investment which the farmer can make in his farming busi-The subject of good roads did not relate directly to corn breeding, but it was among the most valuable addresses given, and interested a large audience not only from the students and farmers, but from the residents of the city of Manhattan. interested in good roads.

The principle address of the Corn Breeders' meeting was given on the evening of January 23. A large audience assembled in the College Auditorium to listen to Prof. C. P. Hartley, "Uncle Sam's corn breeder," from the United States Department of Agriculture at Washington, who spoke on "The Production of Good Seed-Corn." He illustrated his lecture with stereopticon views in which he demonstrated the actual results which had been secured in corn breeding experiments at Washington. For two hours Professor Hartley had the undivided attention of his audience. His work clearly shows that it is possible to secure any reasonable result in the breeding of corn which the breeder may desire. The type of the ear may be changed, the type of the kernel, the depth

of the kernel, the height of the stalk, the height of the ears on the stalks, as well as the quality of the grain, and the yield of the corn, by securing seed from plants and ears of corn which have these certain characteristics. In this report it is not possible to go further into the discussion of Professor Hartley's address. A bulletin recently published by the United States Department of Agriculture (No. 229) is a report of the results of many experiments referred to in Professor Hartley's talk. This bulletin may be secured by all who are interested in the subject by writing to the Department of Agriculture at Washington.

The evening session of January 23 concluded the course of lectures. During the forenoon of January 24 the corn-judging class was continued, and the auction sale of the corn placed on exhibit in the corn show was held. The auction was a most interesting feature of the program. Most of the visitors stayed over to attend it, and a large number of farmers were in attendance from the surrounding country. Col. J. W. Robison, president of the association, acted as auctioneer. Colonel Robison is some 70 years old, and says he has done nearly everything, but this is the first time he has ever aeted as auctioneer. The capacity which the Colonel has of doing all things well is shown by the high prices received for the corn.

#### The Corn Contests.

The second annual meeting and corn show of the Kansas Corn Breeders' Association, which closed January 24 at the Kansas State Agricultural College, was considered highly successful by the officials. Speeches were made by leading corn breeders and growers of the United States and Canada. The samples entered, 43 in number, were uniformly good and reflected great credit upon Kansas corn men. The attendance was about 400, about 115 of whom came a distance of more than 15 miles. A score of new members were added to the association.

The officers elected for 1906 were: President, C. E. Hildreth, Altamont; vice-president, P. A. Hammett, Marysville; secretary, Prof. V. M. Shoesmith, Manhattan; treasurer, Hon. Edwin Taylor, Edwardsville; directors, Hon. J. W. Robison, El Dorado, and J. D. Ziller, Hiawatha. Prof. A. M. Ten Eyck, of the College Agriculture Department, is ex-officio a director. The officers and directors constitute the executive committee, which will determine the next place of meeting.

Class D, essay contest, on the subject "Planting Corn," was won by J. D. Ziller, Hiawatha. The prize was a Victor corn

planter, donated by the Fuller & Johnson Manufacturing Company, Madison, Wis. The contest was open to all students of the College, and to all growers of corn in Kansas.

Class E, for the best ten ears of yellow corn, was won by J. D. Ziller, Hiawatha, on "Hiawatha Yellow Dent." Prize, a Plano mower, donated by the International Harvester Company, Chicago.



Corn-Judging Class.

Second place went to C. E. Hildreth, Altamont, for "Hildreth Yellow Dent." Prize, a Kingman "No-Tip" cultivator, from Kingman-Moore Implement Company, Kansas City, Mo. Third place was won by W. R. Hildreth, Altamont, on "Hildreth Yellow Dent." Prize, a 2x6 foot galvanized steel stock tank, donated by the Dempster Mill Manufacturing Company, Beatrice, Neb.

Class F, for the best ten ears of white corn, was also won by J. D. Ziller, on "Farmers' Interest" corn. Prize, Black Hawk corn planter, from D. M. Sechler Company, Moline, Ill. For second place in Class F, on "Boone County White," Mr. Ziller got an Emerson No. 26 cultivator, donated by Emerson-Newton Company, Kansas City. Third prize, an Acme harrow, from Duane H. Nashe, Millington, N. J., was taken by J. W. Hartley, Manhattan, on "Boone County White."

Class G, for the best ten ears of corn of any other variety not

included in classes E and F, was won by C. B. Coffman, Manhattan, on "Bloody Butcher" red corn. Prize, a two-row corn cultivator, from the Demster Mill Manufacturing Company, Beatrice, Neb.

Class H, the "Yield-per-Acre Contest," for the largest yield of corn from one acre, any variety, was won by J. L. Treu, Halifax, Kan. His yield was 103 bushels of shelled "Hildreth Yellow Dent" corn per acre. Prize, a tricycle lister, donated by the Rock Island Plow Company, Rock Island, Ill. J. T. Martin, Hanover, Kan., took second place on "Hildreth Yellow Dent," his yield being 78.5 bushels per acre. Prize, six bushels Hildreth corn or \$15.00 cash, donated by C. E. Hildreth, Altamont. Third place went to C. E. Hildreth, on a yield of 66.66 bushels of "Hildreth Yellow Dent" per acre. No prize offered.

The entries in Class H were made last September 1. The yield was determined by a measured acre of land. One bushel of ears, which was supposed to be a fair sample of the corn produced, was sent to the College, with a statement of its weight. All weights and measurements were accompanied by an affidavit as to their correctness, they having been made by a competent person appointed by the Agriculture Department of the College. The department then made determinations of moisture in the sample bushels, which were figured on the basis of 15 per cent, and all the samples were reduced to the same basis. Thus no credit was given in weight to the corn having a high percentage of moisture. The grower further sent a written statement of the kind of soil upon which his corn was grown, kinds and amounts of fertilizers used, methods of planting and cultivation, and other data of general interest.

C. P. Hartley, physiologist in the United States Department of Agriculture, judged the corn entered for prizes. After the awards were made, the samples were auctioned off by Hon. J. W. Robison, they having under the rule become the property of the College Agriculture Department. The first-prize yellow corn was sold to J. T. Martin, of Hanover, Kan., and brought \$14.00 for the ten-ear sample. The second-prize sample of yellow was bought by the man who grew and exhibited it, for \$8.00. Third-prize yellow was bid in by the College Agriculture Department at \$4.50. The first-prize white sample went to J. W. Troutman, Comiskey, Kan., and brought \$9.50, and the second went at \$5.00 to A. Nicholson, Manhattan. Altogether the corn auctioned brought \$59.75, only a portion being placed on sale. Five ten-ear samples alone brought \$41.00.

Thus it is shown that the Kansas farmer truly values good seed-

corn. When it is considered that an increase of one bushel per acre in the corn crop of the State would mean a total increase of about 8,000,000 bushels, worth about \$2,000,000, there is good reason why he should value it very highly. That the yield may be increased by selection, improvement of the seed and better methods of culture cannot be questioned. And this is the reason for the existence of the Kansas Corn Breeders' Association.

#### A Word from the Secretary.

Most of my troubles this winter have come from premature fixing of dates for institutes by the local committees. They always fix them for the middle of the week. In that they are like many travelers on Pullman cars, who always want a lower berth in the middle of the car on the right-hand side. We do not want to disappoint our friends who want help from the Agricultural College in their institute. In fact, my office was created for the purpose of giving more help. But when dates are set absolutely by the local committee, and then with only a week's notice it will, in most cases, produce disappointment. Committees are urged to write at least four weeks in advance of their desired date, thus giving me time to arrange a series of institutes in that part of the State and saving much railroad expense. All institute work must be arranged in a series of at least three to five institutes per week.

Again, I want to ask the indulgence of the committees in cases where it is necessary to change the dates, even when once accepted by me. If these changes are made it is for the benefit of other people who want help, and when I think a change will enable the same institute workers to reach more places and hold more meetings. Since October this department has assisted in 65 institutes situated in 51 counties, and it has required much figuring over time-tables, and over finances (now practically exhausted). I hope that the good feeling so kindly manifested so far will continue, allowing me to reach every Kansas county. Let us all think of the "other fellow." J. H. MILLER, State Institute Organizer.

State Agricultural College, Manhattan, Kan.

## For More Corn and Wheat.

The Kansas State Agricultural College, through the farmers' institute department, has undertaken a vigorous campaign in Kansas for "more corn and wheat." The average yield of corn in Kansas for the past ten years was only 22 bushels per acre. The average yield of wheat for 1905 was only about 13 bushels per acre. It is possible to greatly increase these averages, as has been

shown in other states. An increase of but a few bushels per acre will mean in Kansas several million dollars to the farmers. Agricultural College is holding a series of institutes this winter where "Corn" and "Wheat" hold leading places on the programs. Lecturers are sent out from the Experiment Station, and successful farmers are also expected to give their experiences. Attention is being centered this winter on the matter of seed selection. While the interest seems greater than heretofore in these meetings, the attendance is not half large enough. Even Missouri is ahead of Kansas, not only in the yield of products but in attendance at farmers' institutes. Not long ago a meeting was held in eastern Missouri that had over 2000 farmers in attendance. A Tennessee institute had, in November, an attendance of over 4000 farmers. But Kansas farmers are studying and reading more probably than those of any other states, and will soon take hold of institute work more vigorously.

The series to start on February 5 has been quite extensively advertised, and as it goes through one of the richest sections of the State and one of the best sections of country in the world the attendance will no doubt be large and much good should be accomplished.

TTT	N	EB	A	RV

February 5	Burlingame 10 A. M	to 19 M
February 8	Fi Down de	iys
February 8-9-10	El Dorado One da	У
February 19	Burden One da	V
February 14	Colony	J V
February 16	Lawrence One da	y
	Dawrence One da	V

Four men from the Agricultural College will be in attendance at these several institutes—President Nichols, Professor Willard, Professor TenEyck, and the Institute Director, two only being at any one institute. In all places except Burlingame and Emporia, local speakers will furnish half or more of each program. The subjects emphasized by the men from the Experiment Station will be "Corn Breeding" and "Wheat Culture." "Stock Feeding" will probably be discussed at several of the meetings.

The new Granary is nearing completion. Its stone-work is finished except the outside pointing, and the carpenters are putting on the roof. The building is small, but it looms up well and will serve a long-felt want.

## THE INDUSTRIALIST

Published weekly during the College year by the Printing Department of the

## Kansas State Agricultural College

Manhattan, Kansas,

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PROF	J	D	WALTERS	Local	Editor
PROF	J	T.	WILLARD	Alumni	Editor

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#### Local Notes.

The Carnegie library board of Manhattan have asked C. E. Davis and Miss Marcia E. Turner to deliver their contest orations once more, for the benefit of the city library.

Professor Erf goes to Chicago on February 15 to deliver an address on "Breeding for Dairy Cows," before the National Dairy Show, which will be held at that city February 15 to 24.

The American Breeders' Association, at their recent annual meeting at Lincoln, Neb., reëlected Professor Erf treasurer for the ensuing year. The Professor has been treasurer of the association since its beginning.

Ex-regent John E. Hessin, of Manhattan, delivered a very interesting and instructive lecture on "What I saw in Italy" before a large audience in the city opera-house. The proceeds, \$50.00, will be added to the fund being raised for building a cement sidewalk in front of Carnegie library.

The new addition to the boiler-house is practically completed and Contractor Henry Bennett has made a substantial job of it. It is intended to start the building of a new 125-feet smoke-stack as soon as the weather thaws up for certain. The old stack will remain and serve the four east boilers, while the new one will be built on the west side of the boiler house and serve the boilers on the west side, of which there will be five next winter.

Arrangements are being completed for a series of dairy institutes to be held along the Santa Fe railroad lines by running an equipped dairy institute train from station to station, as has lately been done with wheat trains and poultry trains along the Missouri Pacific and Rock Island railroad lines. The train will start on February 27, following a schedule that will be published in the next number of the Industrialist.

The Board of Regents, at their regular winter session last week, voted to confer the degree of D. V. M. (Doctor of Veterinary Medicine) on all graduates from the veterinary course. They also allowed the class of '06, to place a class stone in the new Horticultural Building, under the supervision of Professor Walters. Arrangements were made for the acceptance of the addition to the boiler-house, as soon as the contractor would be ready to turn it over to the Board. Upon motion of Regent Story, the following resolution was adopted: Resolved, That we endorse the movements now on foot to modify the rules of football to make the game less brutal and dangerous.

The sixth annual inter-society oratorical contest was held Saturday evening, January 27. The Auditorium, which seats nearly 3000 people, was crowded with students and visitors from the city. The five societies were represented as follows: Alpha Beta, R. R. Birch, "America's Mission to the Nation;" Webster, I. R. Shuler, "Our Country's Mission,
Younger America;" Hamilton, C. E. Davis, "Divine Direction in
Miss Marcia E. Turner, "The Path of Peace." M. R. Shuler, "Our Country's Mission;" Franklin, E. M. Wilson, "Divine Direction in History;" Ionian, Miss Marcia E. Turner, The program was interspersed with a number of musical selections, given by Mrs. Moore, the Alpha Beta chorus, Mandolin Club, Hamilton Quartet, and Ionian Quartet. The orations were ably written and delivered, and Prof. J. E. Kammeyer, who trained the contestants, is justly entitled to much credit for the success of the program. The entire audience was delighted when Prof. W. A. McKeever came in with the decision of the judges and called on Mr. Davis to accept the first prize, a \$20 gold R. R. Birch, representing the Alpha Beta, won second The judges on thought and composition were: Miss M. Louise Jones, of the Kansas State Normal; Miss Mary W. Barkley, of the Topeka High School; Dr. T. S. Young, of the First Baptist The judges on delivery were: Prof. O. B. Towne, church, Topeka. of the Washburn department of oratory; Prof. C. H. Gray, of the Kansas University department of English; Mr. J. E. Edgerton, Superintendent Manhattan City School.

## Alumni and Former Students.

A. S. Stauffer, '04, is still in the employ of Fairbanks, Morse & Co., of Beloit, Wis., but took time to visit the College and hear the oratorical contest.

J. B. Griffing, '04, attended the oratorical contest. He is in the employ of the Watonga Creamery Company, Watonga, Okla., of which H. E. Moore, '91, is the moving spirit.

Lathrop Fielding, who has been employed in Chicago since he graduated from the K. S. A. C. in '05, accepted a good position last week with the Cleburne Telephone Company, in Cleburne, Tex.—

Mercury.

Announcement is made of the marriage of A. B. Newell and Miss Anna Margaret Brandt, at Glenville, Neb., January 18, 1906. Mr. and Mrs. Newell will live on the Newell farm, near Glenville. Mr. Newell will be remembered by many as Albert Newell, sophomore in 1895.

The death of H. R. Thatcher, '03, last week, at his home near Great Bend, came as a sad surprise to his many friends here. Mr. Thatcher was one of the best students in his class, and was of untiring energy. While a student he did not limit his activities to routine, but was alive to every opportunity for the improvement of himself or others. He was an enthusiastic believer in the importance of education in agriculture, and this art will sustain a real loss in his death. He was one of the most active members of the Agricultural Association here.

Miss Josephine Edwards, '05, came from Emporia for the oratorical contest and spent until Monday visiting friends and classmates in Manhattan. She then went to Solomon Rapids to visit Miss Winifred Johnson, '05, and will visit with Miss Minnie Ise, in Downs, before returning home.

Mattie (Farley) Carr, '89, is now principal of the schools of Conconully, Wash. She recently suffered the misfortune of losing her home and personal property by fire. Though she has more than her share of the misfortunes of life she meets them with a cheerful courage. She seldom sees old acquaintances, but is always glad to hear from them.

The Felton twins, '04, of McPherson, Kan., wrote to Professor TenEyck recently, with reference to various farm questions. Among other things, the letter says: "No doubt you sometimes wonder if your teachings of up-to-date methods on the farm are having any effect. Probably you fear we will all be like the Indian in the story—go back to the farm and do as the tribe is doing. To show you that we have not forgotten all our 'book farming,' we mention that we are keeping a set of books and would not think of getting along without them. We might also add that we are working toward a system of crop rotation." The substance of their letter is upon the subject of grasses and the purchase of seed, asking advice because of the prevalence of seed adulteration recently made apparent by the Experiment Station.

The Nationalist gives these interesting Washington notes, furnished by Quincy R. Craft, formerly mail clerk on the Blue Valley railway:

Royal S. Kellogg, ['96], goes to New Orleans Sunday evening next, to address the Southern Lumbermen's Convention on "The Rise in Lumber Prices."

W. R. Spilman, [third-year student in 1889], general superintendent of rural free delivery, gave an address last evening before a men's club in Hyattsville, Md., on the subject, "The Growth of Rural Delivery in the United States."

William L. Hall, ['98], chief of forest products in the forest service, received a substantial recognition of his appreciated services in an advance of salary on the first of the year. Not that a promotion for Mr. Hall is something unusual, for promotions have been coming along each six months with becoming regularity. In his official work Mr. Hall is not only capable and intensely in earnest, but he has proven exceptionally prudent and economical in the direction of public work, so that he is regarded by the chief of the forest service as one of his very best administrative officers. Mr. Hall has just been reëlected superintendent of the Hyattsville Baptist Sabbath-school. Under his direction the school has enjoyed prosperous advancement in numbers, methods of Bible study employed, and spiritual interest.

The untimely death of Mr. George F. Thompson [M.S., 1902] cast a gloom over the entire Kansas colony, and as the days go by each feels the keener his deep personal loss. Strange it seems that one of such strong physical and mental vigor and of so decisive a character should be laid low in the prime of life. And it seems to me that Mr. Thompson's zeal and devotion to duty in carrying out the mission upon which he was sent abroad is primarily responsible. En route home the sea ran high, and water poured into the portion of the vessel where the live stock was kept. At each lurch of the ship several of the goats were thrown, and unless helped to their feet would have drowned. Unable to hire assistants, Mr. Thompson remained in the chilly water day and night, and brought all through alive. But when he reached Washington he was completely worn out, and his health was doubtless impaired more seriously than he realized. At the time of his death Mr. Thompson was serving as president of the K. S. A. C. Alumni Association of this city, as well as in other offices of honor, among them the presidency of a men's club and the leadership of a young men's Bible class. His interest and success in helping others, especially fellow Kansans, endeared him to many, who found in him an instructor, pattern, and friend.

## Weather for January, 1906.

The following report of the observations of the Kansas State Agricultural College weather station, for January, was compiled by Prof. J. O. Hamilton, observer:

The month just closed was marked by high temperatures, high

barometers, bright days, and little snowfall.

The mean temperature for the month, 33.9 degrees, is the highest on record for January, except 1880, when the mean was 37.82 The mean for January for the 47 years recorded is 25.7 degrees. The mean maximum temperature for January, 1906, degrees. was 46 degrees, while the mean maximum temperature for the 47 years previous was 36.4 degrees. The mean minimum was 21.8 degrees, as compared with 15.2 degrees, the previous mean minimum temperature for the month. The highest temperature recorded for the month was 67 degrees on the 20th; the lowest, 3 degrees on the 8th. This makes the month one of five in 47 years without zero weather, while the records for the 47 years show only three January days recorded to have had a higher temperature than 67 degrees.

The total rainfall and melted snow was .89 inches. During the month 3.52 inches of snow fell, 2 inches falling January 2. were 16 clear, 9 partly cloudy and 6 cloudy days. The mean wind

direction was southwest.

The highest barometer was 29.42 on the 26th, and the lowest 28.15 on the 20th.

Earthquake shocks were felt on the 7th, 15th, 19th, and 23d, the disturbance at 6:15 P.M. on the 7th being violent enough to overthrow objects, stop clocks, etc.

Peaches, so far, are in excellent condition, as are all small fruits.

Frost is out of the ground in all open places.